

SONY®

DIGITAL VIDEOCASSETTE RECORDER

DSR-1

DSR-1P

SERVICE MANUAL

Volume 1 1st Edition (Revised 1)



警告

このマニュアルは、サービス専用です。

お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。

危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

WARNING

This manual is intended for qualified service personnel only.

To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

AVERTISSEMENT

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.

ADVARSEL

Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreskrifter.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.

Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

VAROITUS

Paristo voi räjähtää jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.

Udskiftning må kun ske med batteri af samme fabrikat og type.

Levér det brugte batteri tilbage til leverandøren.

Für Kunden in Deutschland

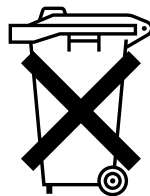
Entsorgungshinweis: Bitte werfen Sie nur entladene Batterien in die Sammelboxen beim Handel oder den Kommunen. Entladen sind Batterien in der Regel dann, wenn das Gerät abschaltet und signalisiert "Batterie leer" oder nach längerer Gebrauchsdauer der Batterien "nicht mehr einwandfrei funktioniert". Um sicherzugehen, kleben Sie die Batteriepole z.B. mit einem Klebestreifen ab oder geben Sie die Batterien einzeln in einen Plastikbeutel.

For the customers in the Netherlands Voor de klanten in Nederland

Dit apparaat bevat een MnO₂-Li batterij voor memory back-up.

Raadpleeg uw leverancier over de verwijdering van de batterij op het moment dat u het apparaat bij einde levensduur afdankt.

Gooi de batterij niet weg, maar lever hem in als KCA.



Bij dit produkt zijn batterijen geleverd. Wanneer deze leeg zijn, moet u ze niet weggooien maar inleveren als KCA.

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Manual Structure

Purpose of this manual

This manual is the Service Manual Volume 1 for the digital videocassette recorder DSR-1/1P.

This manual contains the maintenance information of this equipment, and servicing information necessary for parts replacement and adjustments.

Related manuals

In addition to this Service Manual Volume 1, the following manuals are provided.

- **Operation Instructions**

DSR-1/1P (Supplied with equipment)

Part number: 3-858-431-13 (English; for UC, CE)

3-858-431-23 (French; for UC, CE)

3-858-431-33 (German; for CE)

3-858-431-43 (Italian; for CE)

- **Servive Manual Volume 2 (Not Supplied with equipment)**

Contains the semiconductor pin assingnments, parts lists, block diagrams, board layouts and schematic diagrams.

Part number: 9-977-675-22

- **“Semiconductor Pin Assignments” CD-ROM (Available on request)**

This “Semiconductor Pin Assignments” CD-ROM allows you to search for semiconductors used in Communication System Solutions Network Company equipment.

Semiconductors that cannot be searched for on this CD-ROM are listed in the service manual for the corresponding unit. The service manual contains a complete list of all semiconductors and their ID Nos., and thus should be used together with the CD-ROM.

Part number: 9-968-546-XX

Contents

The following is a summary of all the sections for understanding the contents of this manual.

Section 1 Operating Instruction

Describes the contents of the operating instructions.

Section 2 Service Overview

Describes the replacement of the parts, the locations of the main parts and boards, notes and so on.

Section 3 Periodic Maintenance and Inspection

Describes the periodic inspection and cleaning procedure.

Section 4 Replacement/Alignment of Major Parts

Describes the replacement procedures and adjustment after replacement.

Section 5 Tape Path Alignment

Describes the adjustment procedures of tape path system.

Section 6 Electrical Alignment Overview

Describes the general information for electrical adjustments.

Section 7 Electrical Alignment After Replacement Boards

Describes the electrical adjustment after replacement boards.

Section 8 System Control Alignment

Describes the electrical adjustments of system control systems.

Section 9 Servo System Alignment

Describes the electrical adjustments of servo system.

Section 10 RF System Alignment

Describes the electrical adjustments of RF system.

Section 11 Audio System Alignment

Describes the electrical adjustments of audio system.

Section 12 Video System Alignment

Describes the electrical adjustments of video system.

SONY

3-858-431-13(1)

Digital Videocassette Recorder

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

Section 1 Operating Instructions



DSR-1/1P

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Reprinted from the
operating instructions

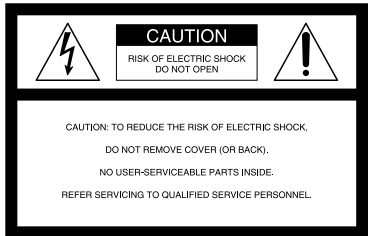
Owner's Record


The model and serial numbers are located on the upper side. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.


Model No. _____ Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.



 This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

 This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

LITHIUM BATTERY

Replace the battery with a Sony CR2032 lithium battery. Use of another battery may present a risk of fire or explosion.

WARNING
Battery may explode if mistreated.
Do not recharge, disassemble or dispose of in fire.

Note
Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

ADVARSEL!
Lithiumbatteri - Eksplosjonsfare ved feilagtig håndtering. Utskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL
Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreskrifter.

VAROITUS
Paristo voi räjähtää jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävittä käytetty paristo valmistajan ohjeiden mukaisesti.

For customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

Caution
Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

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Features

The DSR-1/IP is a dockable VCR that uses the DVCAM™ digital recording format. The DSR-1/IP can be combined with a DXC-D30/D30P/D35/D35P digital video camera or a DXC-637/537A/327B series analog video camera. When docked with the DXC-D30/D30P/D35/D35P, the DSR-1/IP functions as a DVCAM digital camcorder.

New Functions as High-Performance Digital Recording VCR

The DSR-1/IP uses the DVCAM recording format. The internal signal processing is digitalized to provide more stable output signals and higher reliability.

Compatible with consumer DV

A DV cassette recorded on a DV-format VCR can be played back on the DSR-1/IP. (Cassettes recorded in LP mode cannot be played back.)

DVCAM cassettes

The DSR-1/IP can use both standard-size and mini-size DVCAM cassettes. According to cassette size, the DSR-1/IP automatically correct reel position.

The maximum recording/playback times are 184 minutes for standard size cassettes and 40 minutes for mini cassettes.

DVCAM cassettes include a cassette memory. Information about the editing points (ClipLink™ log data) that is specified while shooting is recorded into this cassette memory.

ClipLink™ function

The ClipLink function links all stages from shooting to editing. Once editing points have been set with this function during shooting, they can be used to boost the efficiency of editing work.

Creation of clips

Using the ClipLink function, the camera operator can create clips to be used during editing. The images captured at the Mark IN points are recorded in a compressed format onto the tape as "Index Pictures". In addition, editing point-related data (scene number, time code for Mark IN/OUT points, etc.) is recorded in the cassette memory.

ClipLink mode

To use the ClipLink function, select the menu setting to set the DSR-1/IP into ClipLink mode. There is also a ClipLink continue function that enables clips to be continued even after a break in recording.

PCM digital audio

Recording/playback can be set to audio lock mode. Selectable between two-channel recording (with a sampling frequency of 48 kHz) mode or four-channel recording (with a sampling frequency of 32 kHz) mode (channels 1 and 2 only).

Equipped with audio output connectors

During recording or playback, audio output can be monitored via a built-in speaker, a connected earphone or via (two-channel) audio output connectors.

Color playback

Connect an external video monitor for color playback (playback adaptor not required). The DSR-1/IP is equipped with two video monitor connectors: one for composite video output and the other for S-video output.

Features

New Functions as DVCAM Digital Camcorder

The following unique functions are available when you dock the DSR-1/1P with a DXC-D30/D30P/D35/D35P digital video camera.

Freeze mix function

This function superimposes a freeze-frame from the previous recorded scene to facilitate setting up the same framework for a new scene.

Recording of camera setup data

SetupLog™ function

Settings at shooting are recorded onto the tape in real time. This recorded data can then be used to reproduce the same shooting conditions in subsequent shots. It also makes it easier to identify the causes of problems in previous shots.

SetupNavi™ function

The setup conditions selected using the camera setup menu are recorded onto the tape along with setup file settings. Using this function, the same settings can be reproduced for each recording and the same setup can be shared among several camcorders.

Edit search function

You can operate the search playback function in forward or reverse (two search speeds are available) right from the camera, without having to use the tape transport buttons. This makes it easier to find a recording start point when you restart shooting at any point on the tape.

Time code display on viewfinder screen during playback

The playback time code data can be superimposed on the viewfinder screen.

Audio level adjustable from camera

You can use a knob on the camera's front panel to adjust the channel 1 audio recording level.

Standard Functions as a Dockable VCR

The DSR-1/1P is equipped with all of the standard functions of conventional dockable VCRs.

Back space editing

Press the VTR button on the camera or lens to link recordings with ± 0 -frame accuracy. The recording review function or edit search function can be used to ensure continuous recording with the same accuracy even after changing the tape position via playback/fast forward/rewind or after removing the cassette.

Playback functions

Monochrome playback of recordings can be seen through the camera's viewfinder.

The recording review function automatically rewinds and plays back the last few seconds of the recording. Use this function to easily and quickly check recordings.

Built-in time code generator/reader

The internal time code generator can record the time code data that is required for high-precision editing.

Audio recording functions

In addition to using the camera's built-in microphone, sound can be recorded via a wireless microphone system or an external audio system.

Several power supply options

The DSR-1/1P can use the BP-L40/L60A Battery Pack (for about 75/150 minutes of continuous operation with the DXC-D30/D30P/D35/D35P).

- With an optional DC-L1 Battery Adaptor, the DSR-1/1P can use the NP-1B Battery Pack (for about 60 minutes of continuous operation with the DXC-D30/D30P/D35/D35P).
- With an optional DC-L90 Battery Adaptor, the DSR-1/1P can use the BP-90A Lithium Battery Pack (for about 130 minutes of continuous operation with the DXC-D30/D30P/D35/D35P).
- With an optional AC-550/550CE/DN1/DN2A AC Adaptor, the DSR-1/1P can operate on AC power.

Design for Easy Working

Equipped with both digital and analog camera connectors

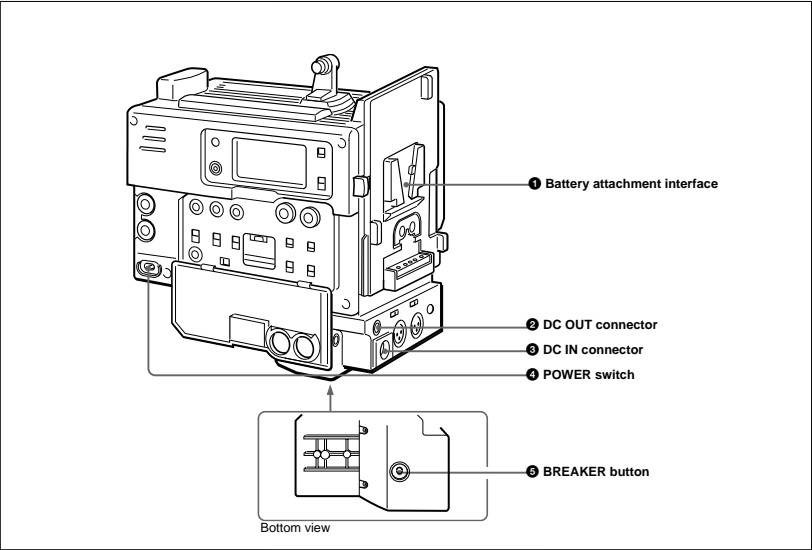
The DSR-1/1P has both PRO 76-pin connector (for digital camera connection) and the PRO 50-pin connector (for analog camera connection). Connectors are easy to replace.

Light and compact

The DSR-1/1P is compact and lightweight enough to be used in the field.

Location and Function of Parts

Power Supply



1 Battery attachment interface

Attach a battery pack or an AC-DN1/DN2A AC Adaptor.

For information about fitting a battery pack or an AC adaptor, see "Power supply" (page 31).

2 DC OUT (DC power output) connector (4-pin, female)

This connector supplies power for a WRR-855A/860A UHF Portable Tuner.

3 DC IN (DC power input) connector (XLR 4-pin, male)

To use the DSR-1/IP with an AC power supply connect an optional AC-550/550CE/CMA-8A/CMA-8ACE AC Adaptor.

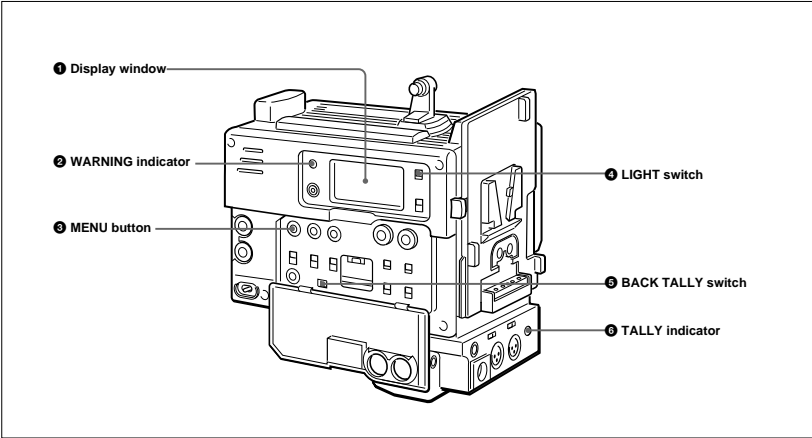
4 POWER switch

Turn the power supply on and off.

5 BREAKER (breaker reset) button

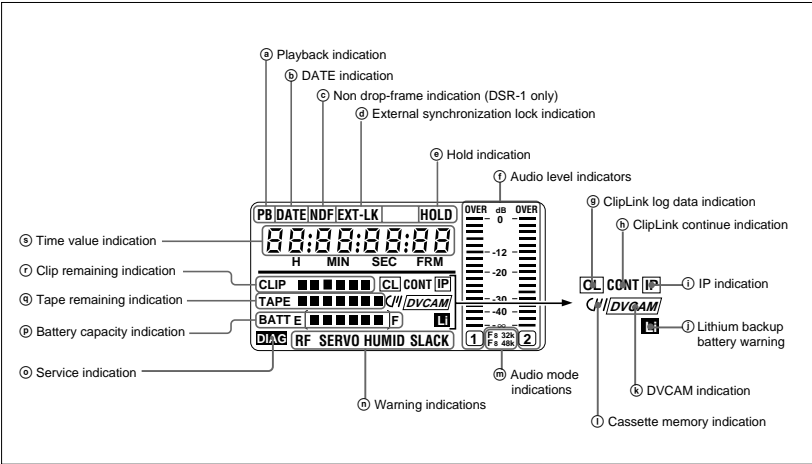
If an excessive current flows in the internal circuits, the internal circuit breaker shuts off the power supply. Push this button after eliminating the cause of the excessive current.

Display Section



1 Display window

The display window shows the following items. Use the LIGHT switch 4 to light up the display window.



Location and Function of Parts

Indications in the display window

Indication	Description																													
Ⓐ Playback indication	Appears during playback, fast forward or rewind with the time data display showing a time code or user bit value.																													
Ⓑ DATE indication	Appears when the date or time is displayed in the time value indication Ⓐ area.																													
Ⓒ Non drop-frame indication (DSR-1 only)	Appears when non drop-frame mode is selected.																													
Ⓓ External synchronization lock indication	Appears when the internal time code generator is locked to an external signal input to the TC IN connector.																													
Ⓔ Hold indication	Appears when the internal time code generator is stopped.																													
Ⓕ Audio level indicators	These show the audio recording or playback levels of channel 1 and channel 2.																													
Ⓖ ClipLink log data indication	Appears when using a cassette with cassette memory containing ClipLink log data.																													
Ⓢ ClipLink continue indication	Appears when back space editing using ClipLink function is possible.																													
Ⓣ IP (index picture) indication	Appears when the ClipLink function is set to on in the VTR menu and index picture recording is allowed.																													
Ⓛ Lithium backup battery warning	Appears when the voltage of the internal lithium backup battery (CR2032) is low. If this indication appears, replace the lithium backup battery immediately. <i>For further information about replacing lithium batteries, see "Inserting and Replacing the Lithium Battery" (page 21).</i>																													
Ⓚ DVCAM indication	Disappears when the cassette being played back is not for DVCAM format.																													
Ⓜ Cassette memory indication	Appears when using a cassette with cassette memory.																													
Ⓜ Audio mode indications	These show audio recording/playback mode. Fs32k: 4-channel mode (32 kHz sampling frequency) Fs48k: 2-channel mode (48 kHz sampling frequency) <i>For further information about selecting audio recording mode, see "Selecting Audio Recording Mode —212" (page 67).</i>																													
Ⓦ Warning indications	Include the following. RF: Appears when the video heads are clogged, or when there is a fault in the recording system. SERVO: Appears when the servo lock is not functioning. HUMID: Appears when there is condensation on the drum. SLACK: Appears when there is a tape winding fault. <i>For measures against warning indications, see "Warning System" (page 72).</i>																													
Ⓢ Service indication	Appears during maintenance on menu operations. It does not appear during normal operation.																													
Ⓟ Battery capacity indication	This indicates the battery capacity and voltage as shown below. Change menu setting for the battery you are using. <i>For menu setting, see "Selecting Battery Capacity Indication —Menu 206" (page 64).</i> <table><tr><th rowspan="2">indication</th><th colspan="2">Battery voltage</th></tr><tr><th>BP-L40/L60A</th><th>NP-1B/BP-90A</th></tr><tr><td>BATT E ■■■■■ F</td><td>15.0 V or more</td><td>12.5 V or more</td></tr><tr><td>BATT E ■■■■■ F</td><td>14.0 to 15.0 V</td><td>12.0 to 12.5 V</td></tr><tr><td>BATT E ■■■■■ F</td><td>13.0 to 14.0 V</td><td>11.75 to 12.0 V</td></tr><tr><td>BATT E ■■■■■ F</td><td>12.0 to 13.0 V</td><td>11.5 to 11.75 V</td></tr><tr><td>BATT E ■■■■■ F</td><td>11.3 to 12.0 V</td><td>11.3 to 11.5 V</td></tr><tr><td>BATT E ■■■■■ F (blinking) a)</td><td>11.25 to 11.3 V</td><td>11.25 to 11.3 V</td></tr><tr><td>BATT E ■■■■■ F (blinking)</td><td>11.0 to 11.25 V</td><td>11.0 to 11.25 V</td></tr><tr><td>BATT E ■■■■■ F (blinking)</td><td>11.0 V or less</td><td>11.0 V or less</td></tr></table> <p>a) Replace the battery pack when this indication appears.</p>	indication	Battery voltage		BP-L40/L60A	NP-1B/BP-90A	BATT E ■■■■■ F	15.0 V or more	12.5 V or more	BATT E ■■■■■ F	14.0 to 15.0 V	12.0 to 12.5 V	BATT E ■■■■■ F	13.0 to 14.0 V	11.75 to 12.0 V	BATT E ■■■■■ F	12.0 to 13.0 V	11.5 to 11.75 V	BATT E ■■■■■ F	11.3 to 12.0 V	11.3 to 11.5 V	BATT E ■■■■■ F (blinking) a)	11.25 to 11.3 V	11.25 to 11.3 V	BATT E ■■■■■ F (blinking)	11.0 to 11.25 V	11.0 to 11.25 V	BATT E ■■■■■ F (blinking)	11.0 V or less	11.0 V or less
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BATT E ■■■■■ F (blinking)	11.0 V or less	11.0 V or less																												

(Continued)

Indications in the display window (continued)

Indication	Description																														
⑨ Tape remaining indication	<p>During recording or pause mode, this indication shows the remaining tape time as shown below. It is not displayed when no cassette is loaded.</p> <table><thead><tr><th>Indication</th><th>Tape time remaining</th></tr></thead><tbody><tr><td>TAPE ■■■■■■</td><td>30 minutes or more</td></tr><tr><td>TAPE ■■■■■■</td><td>25 to 30 minutes</td></tr><tr><td>TAPE ■■■■■■</td><td>20 to 25 minutes</td></tr><tr><td>TAPE ■■■■■■</td><td>15 to 20 minutes</td></tr><tr><td>TAPE ■■■■</td><td>10 to 15 minutes</td></tr><tr><td>TAPE ■■</td><td>5 to 10 minutes</td></tr><tr><td>TAPE ■</td><td>2 to 5 minutes</td></tr><tr><td>TAPE ■ (blinking)</td><td>0 to 2 minutes</td></tr><tr><td>TAPE (blinking)</td><td>End of tape</td></tr></tbody></table>	Indication	Tape time remaining	TAPE ■■■■■■	30 minutes or more	TAPE ■■■■■■	25 to 30 minutes	TAPE ■■■■■■	20 to 25 minutes	TAPE ■■■■■■	15 to 20 minutes	TAPE ■■■■	10 to 15 minutes	TAPE ■■	5 to 10 minutes	TAPE ■	2 to 5 minutes	TAPE ■ (blinking)	0 to 2 minutes	TAPE (blinking)	End of tape										
Indication	Tape time remaining																														
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TAPE ■	2 to 5 minutes																														
TAPE ■ (blinking)	0 to 2 minutes																														
TAPE (blinking)	End of tape																														
⑦ Clip remaining indication	<p>This shows how many clip shots can still be recorded.</p> <table><thead><tr><th>Indication</th><th>Index picture</th><th>Cue point</th></tr></thead><tbody><tr><td>CLIP ■■■■■■</td><td>51 pictures or more</td><td>101 points or more</td></tr><tr><td>CLIP ■■■■■■</td><td>41 to 50 pictures</td><td>81 to 100 points</td></tr><tr><td>CLIP ■■■■■■</td><td>31 to 40 pictures</td><td>61 to 80 points</td></tr><tr><td>CLIP ■■■■</td><td>21 to 30 pictures</td><td>41 to 60 points</td></tr><tr><td>CLIP ■■</td><td>11 to 20 pictures</td><td>21 to 40 points</td></tr><tr><td>CLIP ■</td><td>1 to 10 pictures</td><td>1 to 20 points</td></tr><tr><td>CLIP ■ (blinking)^{a)}</td><td>1 to 3 pictures</td><td>1 to 6 points</td></tr><tr><td>CLIP</td><td>Cannot record</td><td></td></tr><tr><td>CLIP (blinking)^{a)}</td><td>Cannot record</td><td></td></tr></tbody></table> <p>a) When back space editing using ClipLink function is possible (when CONT appears)</p>	Indication	Index picture	Cue point	CLIP ■■■■■■	51 pictures or more	101 points or more	CLIP ■■■■■■	41 to 50 pictures	81 to 100 points	CLIP ■■■■■■	31 to 40 pictures	61 to 80 points	CLIP ■■■■	21 to 30 pictures	41 to 60 points	CLIP ■■	11 to 20 pictures	21 to 40 points	CLIP ■	1 to 10 pictures	1 to 20 points	CLIP ■ (blinking) ^{a)}	1 to 3 pictures	1 to 6 points	CLIP	Cannot record		CLIP (blinking) ^{a)}	Cannot record	
Indication	Index picture	Cue point																													
CLIP ■■■■■■	51 pictures or more	101 points or more																													
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CLIP ■ (blinking) ^{a)}	1 to 3 pictures	1 to 6 points																													
CLIP	Cannot record																														
CLIP (blinking) ^{a)}	Cannot record																														
⑤ Time value indication	<p>Depending on the DISPLAY switch setting, this shows a counter value, time code value, or user bit value. Press the MENU button ⑤ to display the VTR menu.</p>																														

Ⓦ WARNING indicator

This lights or blinks when an abnormality occurs.

For details, see "Warning System" on page 72.

Ⓢ MENU button

Press this button to display the VTR menu in the display window Ⓛ.

For details about the VTR menu, see Chapter 6 "Menu".

Ⓢ LIGHT switch

This switches the display window Ⓛ light on and off.

Ⓢ BACK TALLY switch

Set this switch to ON to activate the TALLY indicator Ⓢ function.

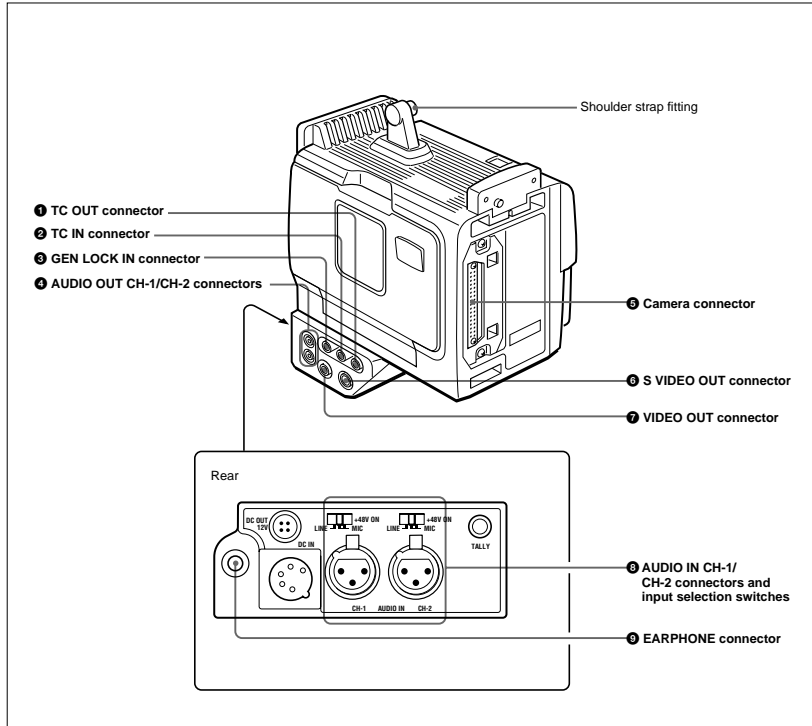
Ⓢ TALLY (back tally) indicator (red)

This indicator lights during recording. It will not light if the BACK TALLY switch Ⓢ is set to OFF. This indicator also blinks to indicate warnings in the same manner as the REC/TALLY indicator in the viewfinder of the camera.

For details, see "Warning System" on page 72.

Location and Function of Parts

Input/Output Connectors



1 TC OUT (time code output) connector (BNC)

This outputs time code signals from the built-in time code generator. When a time code signal is input to the TC IN connector 2, this output signal is synchronized to it.

For details about time code, see "Setting Time Code Value" on page 51.

2 TC IN (time code input) connector (BNC)

Input an external signal for synchronizing the built-in time code generator. Use an SMPTE (DSR-1) or EBU (DSR-1P) time code signal.

Note

Use a jitterless LTC signal. Using an LTC signal reproduced by other equipment may cause the DSR-1/1P to malfunction.

3 GEN LOCK IN (gen lock video input) connector (BNC)

When synchronizing the camera to an external signal, input a reference video signal (VBS or BS).

4 AUDIO OUT CH-1/CH-2 connectors (phono jacks)

These output the sound being recorded or played back. Connect to a stereo amplifier or video monitor's audio input connectors.

5 Camera connector (PRO 76-pin DIGITAL or PRO 50-pin)

Connect to the camera's VTR connector. Two types of connectors are provided and can be replaced according to the camera.

PRO 76-pin DIGITAL: For connecting to the DXC-D30/D30P/D35/D35P digital video camera.

PRO 50-pin: For connecting to the DXC-327B/537A/637A (or DXC-327BP/537AP/637AP) series analog video camera.

For details on replacing camera connectors, see "Mounting on Video Camera" (page 24).

6 S VIDEO OUT (S-video output) connector (DIN 4-pin)

This outputs the image being shot or played back as S-video signals. Connect to the S-video input connector on a VCR or video monitor.

Note

When the CA-514/514P Camera Adaptor is connected, only playback audio is output from this connector.

7 VIDEO OUT (composite video output) connector (BNC)

This outputs the image being shot or played back as composite video signals. Connect to the video input connector on a VCR or video monitor.

Notes

- The output signal from this connector may discontinue when switching the operation between recording and playback. Do not use as a reference signal for external equipment.
- When the CA-514/514P Camera Adaptor is connected, only playback audio is output from this connector.

8 AUDIO IN CH-1/CH-2 (audio input channel 1 and 2) connectors (XLR 3-pin, female) and input selection switches

Connect a microphone or other external audio equipment. Set the input selection switches as shown below according to the microphone or equipment.

MIC +48V ON (right position): For connecting to a 48-V microphone

Note

If this position is selected for a microphone other than 48-V microphone, the microphone may be damaged.

MIC (center position): For connecting any microphone other than 48-V microphone

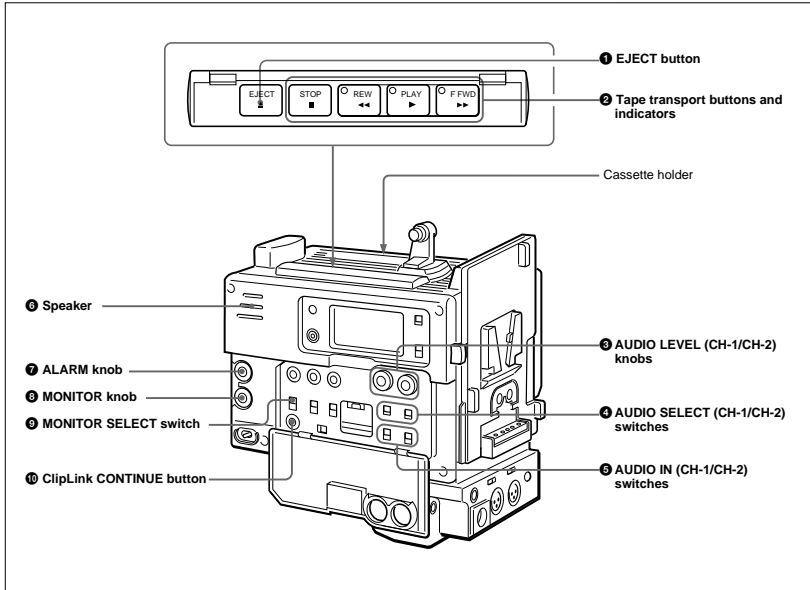
LINE (left position): For connecting an external audio signal source such as a stereo amplifier.

9 EARPHONE connector (mini-jack)

Connect an earphone or headphones. This outputs the sound which was output to the speaker, but mutes the speaker.

Location and Function of Parts

Recording/Playback Section



1 EJECT button ▲
Press this button to open the cassette holder.

2 Tape transport buttons and indicators
These buttons transport the tape as shown below.

Note
During recording, none of these buttons operates.

Button	Operation
REW ◀◀	Rewinds the tape. The indicator lights while the tape is being rewind. Press while the tape is being rewind or during playback to view reverse search playback.
F FWD ▶▶	Fast forwards the tape. The indicator lights while the tape is being fast forwarded. Press while the tape is being fast forwarded or during playback to view forward search playback.
PLAY ▶	Plays back the recorded video. The indicator lights during playback.
STOP ■	Stops the tape.

9 AUDIO LEVEL (CH-1/CH-2) (audio recording level adjustment for channels 1 and 2) knobs
When the AUDIO SELECT (CH-1/CH-2) switches **4** are set to MANUAL, these knobs adjust the audio levels being recorded on channels 1 and 2.

The audio levels are indicated in the display window. For details, see “1 Display window” in “Display Section on page 11.

4 AUDIO SELECT (CH-1/CH-2) (audio recording level adjustment manual/auto selection for channels 1 and 2) switches
These select the audio recording level adjustment method.
AUTO: Use the AGC (automatic gain control) circuit to automatically adjust the audio level.
MANUAL: Enables users to manually adjust the AUDIO LEVEL (CH-1/CH-2) knobs for each channel. Select AUTO if excess input levels are likely to occur.

5 AUDIO IN (CH-1/CH-2) (audio input selection for channels 1 and 2) switches
These select the input signals to channels 1 and 2.
CAM: Signals from the microphone connected to the camera’s MIC IN +48V connector or from the camera’s built-in microphone.
REAR: Signals from a microphone or external equipment connected to the AUDIO IN (CH-1/CH-2) connectors.

6 Speaker
Outputs the recorded or playback audio. When a warning indicator appears in the viewfinder or display window, the speaker sounds a warning tone. The speaker is muted (does not output a warning tone) when an earphone is connected to the EARPHONE connector.

For details on the warning tone, see “Warning System” (page 72).

7 ALARM (alarm tone volume adjustment) knob
This controls the volume of the warning tone that is output via the speaker **6** or earphone. Turning this knob to the minimum setting mutes the alarm tone.

8 MONITOR (monitor volume adjustment) knob
This controls the volume of the sound other than the warning tone that is output via the speaker **6** or earphone. Turning this knob to the minimum setting mutes the audio output.

9 MONITOR SELECT (audio monitor selection) switch
This selects audio output via the speaker **6** or earphone.
CH-1: Channel 1 audio
MIX: Mixed audio (channels 1 and 2)
CH-2: Channel 2 audio

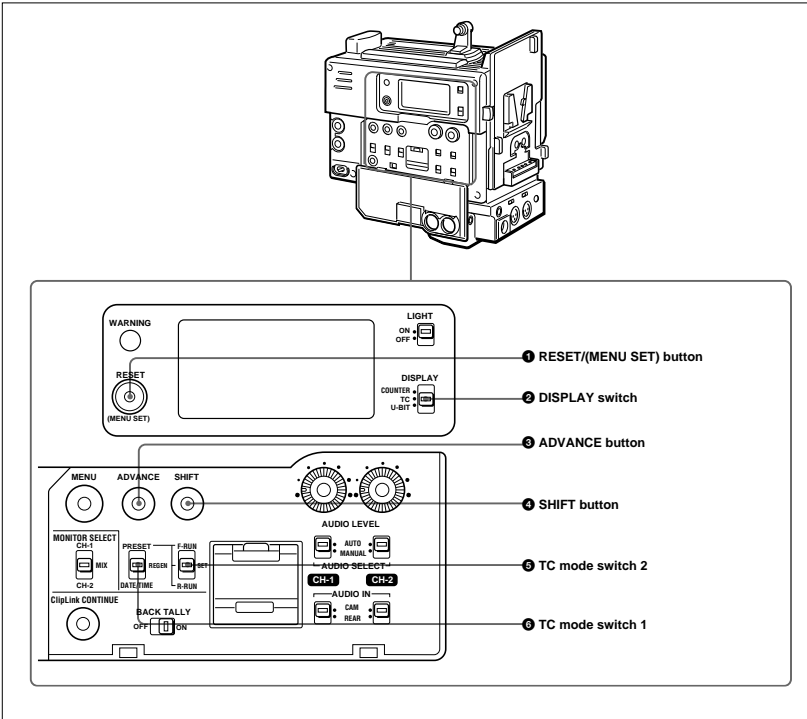
10 ClipLink CONTINUE button
When restart ClipLink shooting, press this button to add the new clip at the end of the recorded clips.

Note
If you restart recording without pressing this button, the pre-recorded ClipLink log data and index pictures are deleted.

For details, see Chapter 5 “ClipLink Shooting”.

Location and Function of Parts

Time Code Section



1 RESET/(MENU SET) (counter reset/VTR menu set) button

Resets the time value shown in the display window. This button operates differently depending on settings of the DISPLAY switch 2 and the TC mode switch 2 5.

Switch setting	RESET button operation
DISPLAY: COUNTER	Resets counter value to 0:00:00.
DISPLAY: TC TC mode switch 1: PRESET TC mode switch 2: SET	Resets time code to 00:00:00:00.
DISPLAY: U-BIT TC mode switch 1: PRESET TC mode switch 2: SET	Resets user bit ^{a)} to 00 00 00 00.

a) Bits of time code recorded on tape, in which users can record necessary information.

Also, this button is used to change menu settings.

For details on the VTR menu, see Chapter 6 “Menu”.

2 DISPLAY switch

Switches time value indication shown in the display window.

COUNTER: Shows the tape transport time in HH:MM:SS (hours, minutes, and seconds).

TC: Shows the time code value.

U-BIT: Shows the user bit data in the time code.

For information about the display window, see “1 Display window” in “Display Section” on page 11.

3 ADVANCE button

When setting time code and user bit values, or at menu setting, press this button to increment the digit that has been selected with the SHIFT button 4. In other case, keep pressing this button to show the clip remaining indication instead of time value. (Example: \overline{CLIP} 745)

For time code and user bit settings, see pages 50 and 51.

On how to use the ADVANCE button for menu settings, see Chapter 6 “Menu”.

4 SHIFT button

When setting time code and user bit values, or at menu setting, keep pressing this button to select a digit. The selected digit will start blinking.

In other case, keep pressing this button to show the date (when the DISPLAY switch 2 is set to U-BIT) and time (when the DISPLAY switch 2 is set to TC) instead of time value.

For time code and user bit settings, see pages 50 and 51.

On how to use the ADVANCE button for menu settings, see Chapter 6 “Menu”.

5 TC (time code) mode switch 2

Sets the mode for advancing time code values when the TC mode switch 1 6 has been set to PRESET.

F-RUN: The time code advances continuously whether or not the DSR-1/1P is recording. Use this setting to align the time code value with real time.

SET: Use this setting to set the time code or user bit value.

R-RUN: The time code value advances only during recording. Use this setting to have consecutive time code values for consecutive recordings on the tape.

Note for the DSR-1

There are two time code frame modes: drop-frame (DF) mode and non drop-frame (NDF) mode. This product is shipped with drop-frame mode selected.

For details on switching between drop-frame mode and non drop-frame mode, see “Selecting Drop-frame (DF)/Non-drop frame (NDF) mode (for DSR-1) —Menu 204” on page 63.

For details on drop-frame mode and non drop-frame mode, see “Drop-frame mode (for DSR-1 Only)” on page 52.

6 TC (time code) mode switch 1

Selects between resetting the time code value or continuing from the time code value at the end of the previous recording.

PRESET: This starts recording time code values on the tape from the currently set value.

REGEN: This reads the tape’s current time code value and sets the time code to record starting from that value. This ensures that the tape’s time code will be continuous, even if there is a break in recording. The time code value is advanced in R-RUN mode regardless of the setting on TC mode switch 2 5.

DATE/TIME: This synchronizes the time code to the real time clock set in the VTR menu (see page 63). In this case the time code of the DSR-1 is recorded in DF (drop-frame mode).

Note

If the ClipLink function is set to on (meaning ClipLink shooting is allowed) in menu 211 and **CONT** is displayed in the display window, regardless of the setting of this switch, the time code generator automatically enters the REGEN mode at recording. (The ClipLink function is factory-set to on.) When you will not perform ClipLink shooting, set the ClipLink function to off (see page 67).

Inserting and Replacing the Lithium Battery

The DSR-1/1P uses a lithium battery to retain stored data. When using the DSR-1/1P for the first time, **be sure to insert the supplied lithium battery (CR2032)**. The DSR-1/1P will not operate correctly without this lithium battery.

Lifetime of the lithium battery

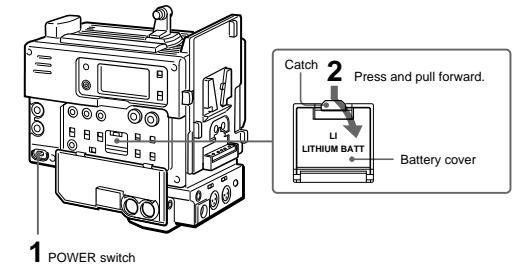
When the lithium battery's voltage falls, the lithium backup battery warning **[B]** appears in the display window. If this warning appears, replace the lithium battery (CR2032) **within three or four days**. The lithium battery has an average service life of about two years, however operation in ClipLink mode will shorten the lifetime until about one year.

Inserting or replacing the lithium battery

Notes

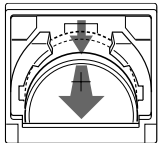
- Carefully read the instructions for inserting and replacing the lithium battery. **Lithium batteries may explode if misused.**
- Use only CR2032 Lithium Batteries. Other types of lithium batteries may come loose when the camcorder is moved. If you have difficulty finding CR2032 Lithium Batteries, contact your Sony dealer.

- 1 Turn the POWER switch on.
- 2 Press down the catch at the top of the battery cover and open the cover.



- 3 Take out the lithium battery.

Press down and pull out toward you.



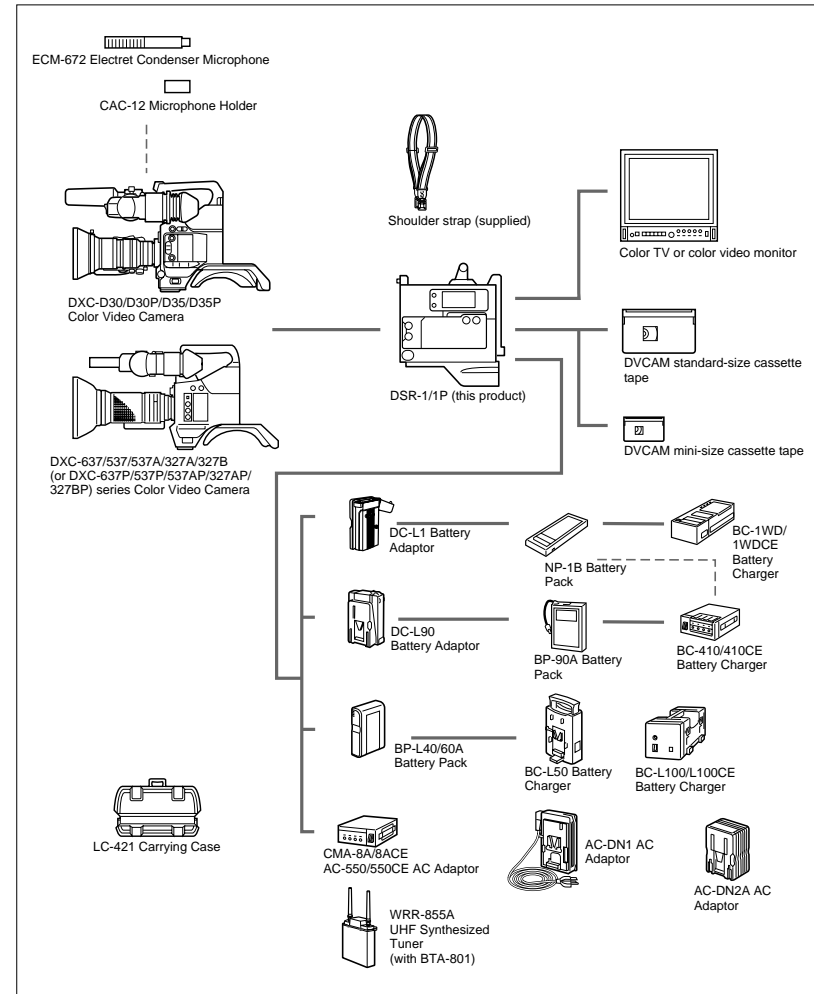
(Continued)

Inserting and Replacing the Lithium Battery

- 4 Reverse step 3 to insert a replacement lithium battery. Make sure that the + symbol on the battery is facing you.
- 5 Close the battery cover.

Example System Configuration

This product can be used with the equipment shown below.



Mounting on Video Camera

The DSR-1/1P is dockable with the DXC-D30/D30P/D35/D35P digital video camera or with a DXC-637/537/537A/327A/327B series analog video camera.

Switch the camera connectors according to the camera to be used.

Using a DXC-D30/D30P/D35/D35P: Use the PRO 76-pin DIGITAL connector.

Using a DXC-637 series camera: Use the PRO 50-pin connector.

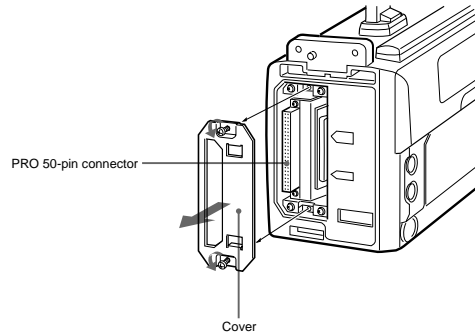
Note

Turn the POWER switch off before mounting the DSR-1/1P on the video camera.

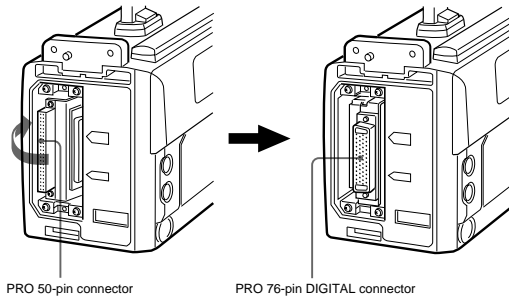
Using the DXC-D30/D30P/D35/D35P

Replace the PRO 50-pin connector with the PRO 76-pin DIGITAL connector.

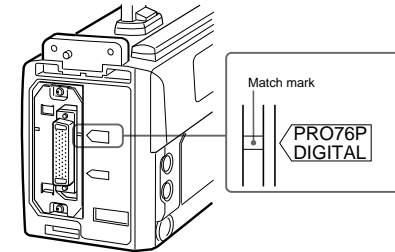
- 1 Loosen the two screws (M3) and remove the cover from the PRO 50-pin connector.



- 2 Press the right side of the PRO 50-pin connector until the PRO 76-pin DIGITAL connector appears. The both connectors swing to switch the positions by pressing either of them.



- 3 Attach the cover upside down. Make sure that the match mark lines up with the PRO76P DIGITAL indication.



Using the DXC-637/537/537A/327A/327B series camera

Replace the PRO 76-pin DIGITAL connector with the PRO 50-pin connector. Press the left side of the PRO 76-pin DIGITAL connector until the PRO 50-pin connector appears. Make sure that the match mark lines up with the PRO50P indication.

Mounting on the camera

This section describes the procedure for mounting the DSR-1/1P on a DXC-D30/D30P/D35/D35P. Use the same procedure for mounting on a DXC-637 series camera. (Replace the PRO 76-pin DIGITAL connector with the PRO 50-pin connector.)

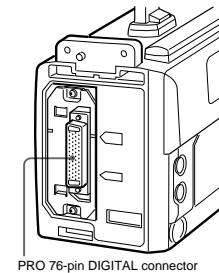
When using the camcorder grip

When configuring a camcorder with the camera, a camcorder grip (not supplied) can be attached instead of the camera grip.

For instructions on attaching the grip, see the operating instructions for the camera.

- 1 If necessary, replace the PRO 50-pin connector with the PRO 76-pin DIGITAL connector.

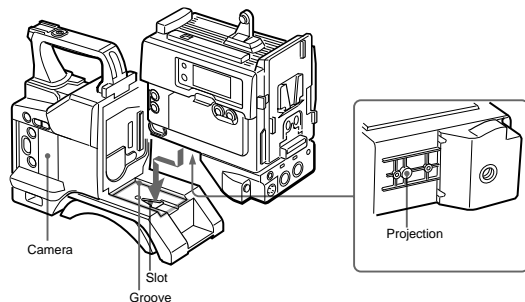
For details, see "Using the DXC-D30/D30P/D35/D35P" (on previous page).



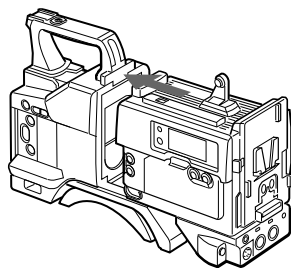
(Continued)

Mounting on Video Camera

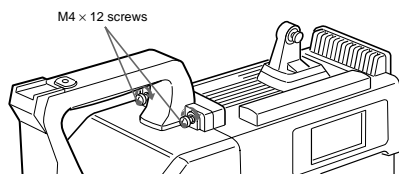
- 2** Fit the projection on the bottom of the DSR-1/1P into the slot on the camera.



- 3** Slide the DSR-1/1P along the groove on the camera, and press firmly until fixed.



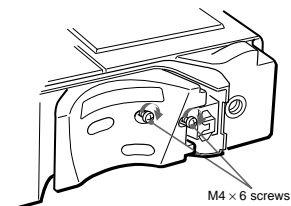
- 4** Tighten the two screws (M4 × 12) in the figure.



- 5** Tighten the two screws (M4 × 6) to fix the shoulder pad.

Note

Slide the shoulder pad to its central position before tightening the screws. Otherwise the screws may not be properly fixed.



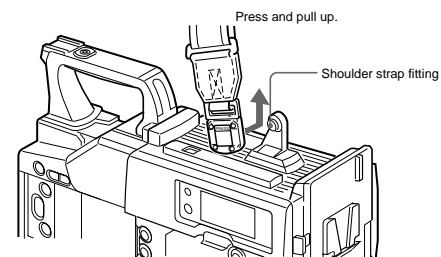
Removing from the camera

Follow the procedure above in reverse.

Fitting the Shoulder Strap

This section describes the procedure for fitting the supplied shoulder strap to the camcorder.

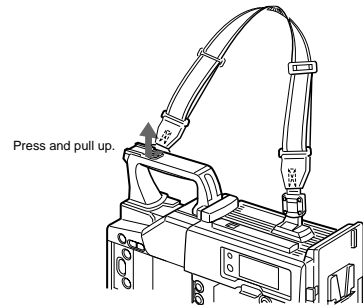
- 1** Fit one of the clips to a shoulder strap fitting on the DSR-1/1P.



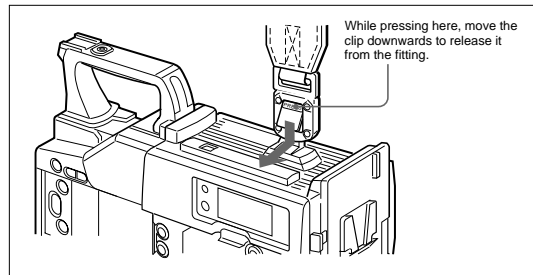
(Continued)

Mounting on Video Camera

- 2** Fit the other clip to the shoulder strap fitting on the camera in the same way.



Removing the shoulder strap



Connecting Audio System

The DSR-1/1P is able to record sound not only from the microphone attached to the camera but also from a wireless microphone or an external audio system.

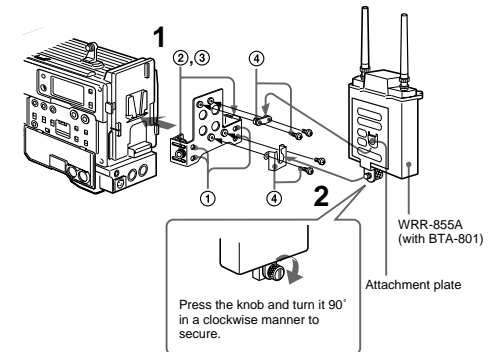
Using a Wireless Microphone System

When using the wireless microphone system including a WRT-810A/830A UHF Wireless Microphone and a WRR-810A/855A/860A UHF Portable Tuner to record sound, connect the tuner as described below. (The procedure below is for connecting the WRR-855A using the BTA-801 Portable Tuner Mount Adapter.)

For details on using the wireless microphone system, see the operating instructions for the microphone and tuner.

- 1** Attach the WRR tuner fitting (not supplied) (Part No. A-8278-057-A) to the rear of the DSR-1/1P as shown in the figure.
 - ① Pass a screwdriver through the holes and tighten the screws.
 - ② Loosen the adjustment screws.
 - ③ Adjust the metal fitting position for a battery pack to be attached, and tighten the adjustment screws to fix its position.
 - ④ Attach the holder kit (two fittings and four screws, supplied with the tuner) to the WRR tuner fitting (one for the upper position and the other for the lower position).
- 2** Mount the tuner on the WRR tuner fitting, then tighten the screw at the bottom of the BTA-801.

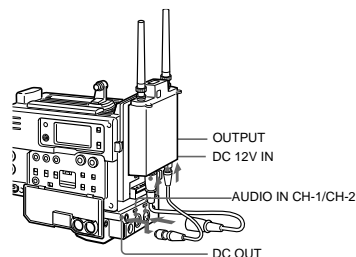
For details about the WRR tuner fitting (Part No. A-8278-057-A), contact your Sony dealer.



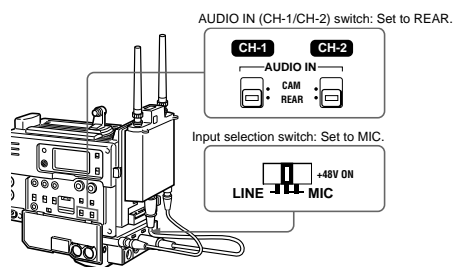
(Continued)

Connecting Audio System

- 3 Connect an optional output cable into the OUTPUT connectors on the BTA-801 and either of the AUDIO IN CH-1/CH-2 connectors. Connect the DC power (supplied with the BTA-801) cable into the DC 12V IN connector on the BTA-801 and the DC OUT connector.

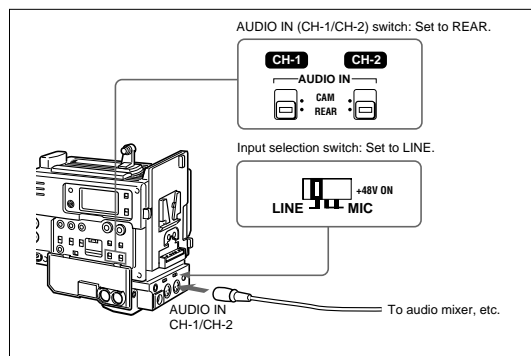


- 4 Set the AUDIO IN (CH-1/CH-2) switch (for the tuner-connected channel) to REAR and the input selection switch for the AUDIO IN CH-1/CH-2 connector (where the tuner cable is connected) to MIC (center position).



Using an External Audio System

Connect an audio mixer or other external audio system component to the AUDIO IN CH-1/CH-2 connector as shown below.



Power Supply

The following power supplies can be used with the DSR-1/IP.

- BP-L40/L60A lithium-ion battery pack
- NP-1B Ni-Cd Battery Pack (The DC-L1 Battery Adaptor is required.)
- BP-90A Ni-Cd Battery Pack (The DC-L90 Battery Adaptor is required.)
- AC power (The AC-550/550CE, AC-DN1/DN2A or CMA-8A/8ACE AC Adaptor is required.)

Alternatively, you can make combined use of internal and external batteries, by mounting one of the above batteries as an internal battery and connecting an external battery that can be a BP-90A contained in a DC-210 Battery Adaptor and connected to the DC IN connector of the DSR-1/IP.

Using a BP-L40/L60A Battery Pack

With a battery pack, the DSR-1/IP will operate continuously for the time shown below.

BP-L40: Approx. 75 minutes

BP-L60A: Approx. 150 minutes

Before use, charge the battery pack with a BC-L50/L100/L100CE Battery Charger.

Notes on using the battery pack

- A warm battery pack may not be fully recharged.
- Even when fully charged, battery packs gradually lose their charge naturally. Use the battery packs as soon as possible after recharging.
- To prolong the life of battery packs, store them in a cool place (about 20°C (68°F)), and charge in a place with an ambient temperature between 10°C and 30°C (50°F to 86°F).
- Before long-term storage, discharge the battery fully. This extends the battery life.
- It is recommended that the BP-L40 be used at 30 W or less. The specified capacity may not be obtained if the BP-L40 is connected to the DSR-1/IP which is operated with camera and accessories at 30 W or higher, especially when the ambient temperature is low.
- At low temperatures, the usable time of battery packs decreases. When the ambient temperature is 0°C (32°F), usable time decreases by about 10%. (However, the usable time is affected by the power consumption of the DSR-1/IP, camera and accessories in addition to the usage status of the battery packs.) The usable time of battery packs increases if they are warmed to the room temperature (about 20°C (68°F)) before use at low temperatures.
- If you use the BP-L40 at temperatures of 0°C (32°F) or below, when power consumption of the DSR-1/IP, camera and accessories is 40 W or higher (due to using a video light, for example), power may break after a short time (a few minutes). To increase the usable time, store the BP-L40 in a warm place, and power on the DSR-1/IP and camera before the BP-L40 cools down.



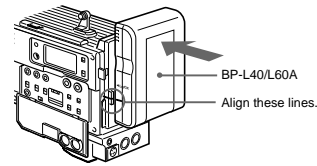
Power Supply

- Compared to the BP-L40, the BP-L60A offers better performance at low temperatures. The BP-L60A is recommended for use at low temperature.
- Carrying a spare battery pack is recommended.

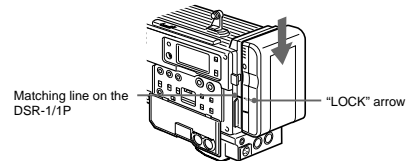
The BP-L40/L60A is free from memory effect. There is no need to discharge it fully before recharging.

Attaching the battery pack

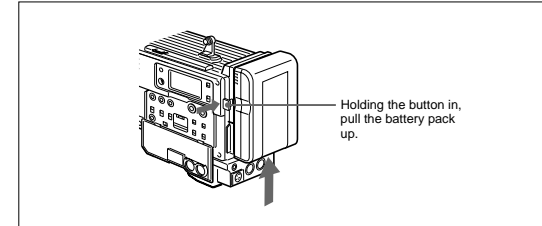
- 1 Press the battery pack against the rear of the DSR-1/1P, aligning the side line of the battery pack with the line on the DSR-1/1P.



- 2 Slide the battery pack down until its "LOCK" arrow points at the matching line on the DSR-1/1P.



Detaching the battery pack



Avoiding breaks in operation due to dead batteries

If you use both an internal battery pack and an external battery connected to the DC IN connector at the same time, you can avoid breaks in operation due to the dead batteries.

When the external battery begins to fail and an internal battery pack is also used

Remove the DC output cable of the external battery from the DC IN connector. The power source will switch to the internal battery pack.

When the external battery begins to fail and an internal battery pack is not used

First load the DSR-1/1P with a fully charged internal battery pack, then remove the DC output cable of the external battery from the DC IN connector. The power source will switch to the internal battery pack. To use an external battery again, connect a fully charged external battery to the DC IN connector before unloading the internal battery pack. The power source will switch to the external battery.

Continuous operation when operating with only an internal battery pack

First, connect a fully charged external battery to the DC IN connector, then change the internal battery.

Notes

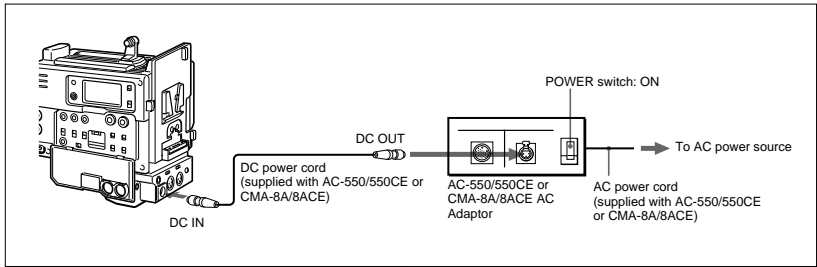
- Whenever an internal battery pack is loaded and an external battery is connected to the DC IN connector, the external battery is always used as the power source.
- There may be some noise on the video or audio signal at the instant the power sources are switched.

Power Supply

Using an AC Power Source

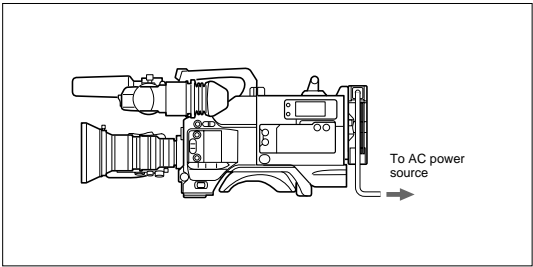
The DSR-1/1P can be connected to an AC power source via an optional AC-550/550CE/DN1/DN2A or CMA-8A/8ACE AC adaptor. If you connect the DSR-1/1P to this adaptor while a battery is fitted, the power supply will automatically switch from the battery to the AC power source.

Using the AC-550/550CE or CMA-8A/8ACE AC Adaptor



Using an AC-DN1/DN2A AC Adaptor

Mount the AC-DN1/DN2A on the DSR-1/1P in the same way as a battery, then connect to the AC power source.



Note

When power consumption of the DSR-1/1P, camera and accessories is 38 W or higher, use the AC-DN2A AC adaptor (lower than 150 W).

Cassettes for the DSR-1/1P

The DSR-1/1P can use standard-size and mini-size DVCAM and DV series metal tape cassettes. (To ensure high-quality playback, editing, and storage of recorded contents, we recommend using highly reliable DVCAM cassettes.)

The following table lists the cassettes that can be used in the DSR-1/1P.

Model name	Size
PDV-64ME/94ME/124ME/184ME	Standard size
PDVM-12ME/22ME/32ME/40ME	Mini size

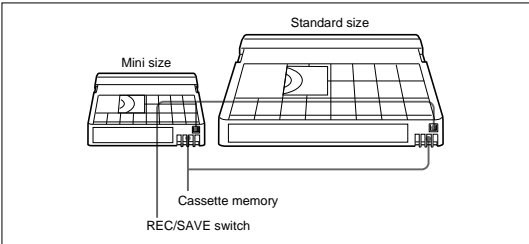
The numbers in the model names show maximum recording/playback time (minutes) for each model. For example, the maximum recording/playback time of the PDV-184ME is 184 minutes.

Notes

- If you insert an incorrect type of cassette, it will be automatically ejected.
- When using a DV cassette, the maximum recording time is reduced to two-thirds of the time indicated on the cassette. For example, up to 40 minutes of recording can be done on a 60-minute DV cassette.

DVCAM cassettes

The following figure illustrates the DVCAM cassette's appearance.



For ClipLink shooting, a DVCAM cassette including "cassette memory" is necessary. In the cassette memory, data required for editing the recorded video (ClipLink log data) is stored. The DSR-1/1P can record or play back the cassettes with cassette memory of 16 kbits or less.

For details of ClipLink log data, see Chapter 5 "ClipLink Shooting".

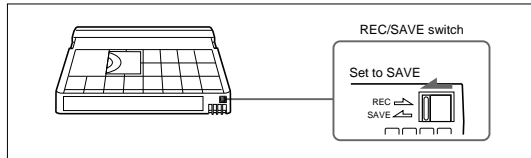
Cassettes for the DSR-1/1P

Notes on using cassettes

- Before storing the cassette, rewind the tape to the beginning and be sure to put the cassette in its storage case, preferably on end instead of flat on its side. The storage case of a DVCAM cassette is specially designed to ensure a long-period storage of the tape.
Storing a cassette in any other condition (not rewound, out of its case, etc.) may cause the video and audio contents to become damaged over time.
- If the cassette memory connector (contact point) becomes dirty, connection problems may occur and cause a loss of functions. Remove away any dust or dirt from this area before using the cassette.
- If the cassette is dropped on the floor or otherwise receives a hard impact, the tape may become slackened and may not record and or play back correctly. For instructions on removing tape slack, see next page.
- Follow the instructions on page 39 to insert a cassette, or the DSR-1/1P may be damaged.

Preventing accidental erasure

Set the REC/SAVE switch to SAVE to prevent accidental erasure of recorded contents.



If you insert a cassette into the DSR-1/1P when this switch is set to SAVE, the DSR-1/1P will not record when you press the REC button.

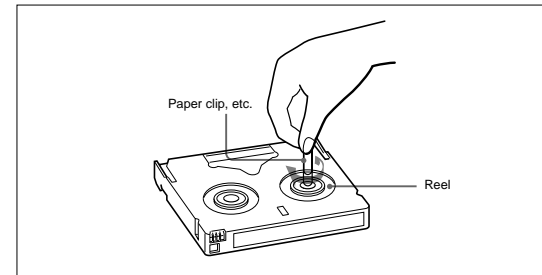
To enable recording

Set the REC/SAVE switch back to REC.

Checking the tape for slack

Turn the reel gently in the direction shown by the arrow. If the reel does not move, there is no slack. Insert the cassette into the cassette holder, close the cassette holder, and after about 10 seconds take it out.

See page 39 on how to insert a cassette.



Shooting

This section describes basic shooting operations using the DSR-1/1P.

Notes

- When you will not perform ClipLink shooting, set the ClipLink function to oFF in the VTR menu.

See page 67 for menu setting and see Chapter 5 for details of ClipLink shooting.

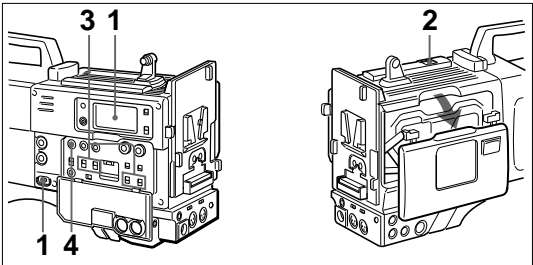
- Before shooting, mount or connect any required equipment or accessories and check the power supply.

See Chapter 2 “Fitting and Connecting Related Equipment”.

Also, it is desirable to make sure for problems in VCR’s internal operations and the VCR/Camera connection using the auto-check function.

See “Using Auto-Check Function —Menu 210” on page 65.

- When using a tape recorded by the DSR-1/1P to transfer digital (video/ audio/time code) signals at four times normal speed from the DSR-85/ 85P Digital Videocassette Recorder to the ES-7 EditStation for editing purposes, there must be about at least 40 seconds of recording on the tape before the IN point. To perform editing without problems, it is recommended that you pre-record at least 40 seconds of color bar signals at the beginning of the tape.



- 1 Set the POWER switch to ON and check the following items in the display window.

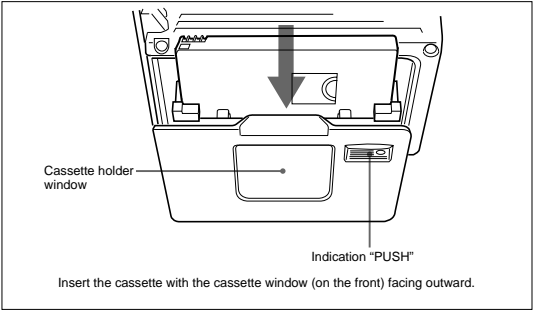
Item to check	Indication and steps	See also
How is the battery?	BATT E (■■■■■) F: The battery is fully charged. If two or fewer marks appear and the indication is blinking, replace the battery.	“1 Display window” in the “Display Section” (page 11)
Has the lithium battery been inserted and is it charged?	Make sure that the L is not shown in the display window. If it is shown, replace the lithium battery.	“Inserting and Replacing the Lithium Battery” (page 21)
Is there a condensation problem?	Make sure that the “HUMID” indication is not shown in the display window. If it is shown, do not use the equipment until the “HUMID” indication disappears.	“Condensation” (page 73)

- 2 Press the EJECT button to open the cassette holder, and insert the cassette.

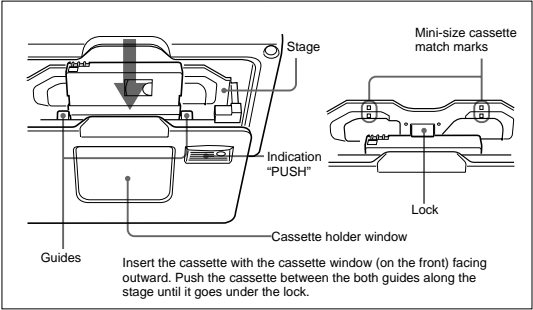
Make sure that the cassette’s REC/SAVE switch is set to REC, then check for tape slack before loading the cassette.

For details on handling cassettes, see “Cassettes for the DSR-1/1P” on page 35.

Inserting a standard-size cassette



Inserting a mini-size cassette



Press on “PUSH” on the cassette holder solidly to close the holder.

Notes

- Turn the power on and then insert or eject the cassette.
- When inserting a mini-size cassette, confirm the cassette is under the lock (see the above figure), and then close the cassette holder. If the cassette is not inserted fully under the lock, a stopper will prevent the cassette holder from closing when you press down on it.

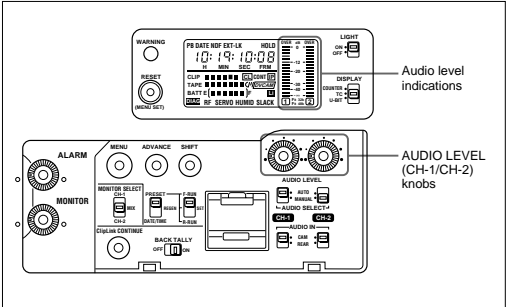
(Continued)

Chapter 3 Shooting

Shooting

Manually adjusting audio recording level

- 1 In step 3 above (“Shooting”), set the AUDIO SELECT (CH-1/CH-2) switches to MANUAL (see page 40).
- 2 While checking the audio level in the display window, turn the AUDIO LEVEL (CH-1/CH-2) knob for the channel being used for microphone or wireless microphone system connection (channel 1 or 2) so that the maximum audio level is under 0 dB.



When the battery is getting exhausted

When the battery is getting exhausted, the BATT indication in the display window blinks once a second (see page 12). Replace the battery with a charged battery immediately. If you continue to use the low battery, the BATT indication will blink four times a second, and the operation will stop.

For description of how to replace batteries, see “Power Supply” on page 31.

Note

Turn the POWER switch OFF before replacing the battery.

Back Space Editing

This section describes the steps for recording several scenes continuously.

If using the DSR-1/1P with the DXC-D30/D30P/D35/D35P, you can also perform back space editing while creating clips. For details, see Chapter 5 “ClipLink Shooting”.

- 1 Follow steps 1 to 5 (pages 38 to 41) in the procedure “Shooting” to begin recording.

To continue the time code that has been recorded on the tape, set the TC mode switch 2 to R-RUN in step 3 (page 40).

For details of time codes, see “Setting Time Code Value” on page 51.

- 2 When you have finished recording a scene, press the VTR button on the camera or lens.

This pauses the recording operation.

Note

Do not do any of the following before the next scene is shot as it will interrupt the recording (the recording will not be continuous).

- Remove the cassette.
- Transport the tape (play, rewind, fast forward).
- Press the STOP button.
- Replace the battery when the DSR-1/1P is powered.

- 3 When you are ready to shoot the next scene, again press the VTR button on the camera or lens.

This restarts the recording operation.

- 4 Repeat steps 2 and 3 for each scene to be shot.

Operation	Step
Restart an interrupted recording (see step 2 above)	See “Starting Back Space Editing at Any Tape Position” on next page.
Check the recorded contents	See “Checking the Record Contents Immediately After Shooting —Recording Review” on page 47.
Stop recording	Press the VTR button on the camera or lens, then press the STOP button on the DSR-1/1P.

Back Space Editing

If there is a long period before shooting the next scene

Setting the camera's power switch to ON SAVE can help you conserve on power and extend battery usage. However, since it takes time for the recording to start after pressing the VTR button, set up standby-on mode shortly beforehand by changing the camera's power switch to ON STBY. Once set in standby-on mode, the DSR-1/1P waits a certain (user-definable) period of time and then automatically switches to standby-off mode.

For details on setting the camera's power switch (ON SAVE/ON STBY), see the operating instructions for your camera.

For details on setting the timeout value for automatic switching to standby-off mode, see "Setting the Standby Period — Menu 207" on page 64.

Starting Back Space Editing at Any Tape Position

This section describes the steps for insert a new scene at any desired position on the tape.

The following steps can also be used to restart recording after an interruption has occurred.

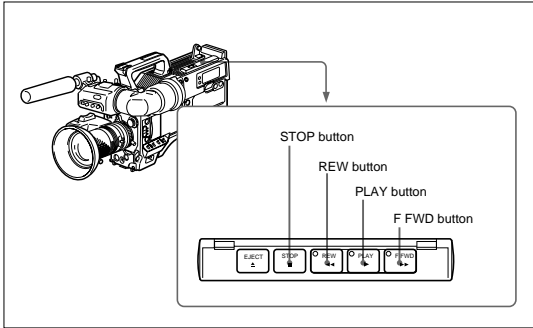
- 1 Perform step 1 (page 38) in "Shooting".
- 2 Insert the cassette containing the previous recording.
- 3 Perform steps 3 and 4 (pages 40 and 41) in "Shooting".

To continue from the last time code of the previous recording, set TC mode switch 1 to REGEN.

For details about time codes, "Setting Time Code Value" on page 51.

- 4 Press the PLAY button.

The recorded contents are displayed on the viewfinder screen.



Operation at playback	Step
Fast forward the tape	Press the F FWD button.
Rewind the tape	Press the REW button.

- 5 Press the STOP button when the tape reaches the position where the new recording will start (see the figure above).

This stops the tape.

- 6 Press the REC REVIEW button¹⁾ on the camera or the RET button¹⁾ on the lens.

This rewinds the tape slightly and runs it until the continue point (specified by step 5), then sets the DSR-1/1P to recording pause state.

- 7 Press the VTR button on the camera or lens.

This starts recording.

When using the DXC-D30/D30P/D35/D35P, the edit search function enables you to search for the continue position. For details, see the operating instructions for the DXC-D30/D30P/D35/D35P.

1) For more information about the REC REVIEW and RET buttons refer to the operating instructions for your camera.

Back Space Editing

Note

If you turn the POWER switch off during recording, or when recording is paused, the DSR-1/IP automatically goes through its shut-down sequence, then powers off. When you next turn the POWER switch on, the DSR-1/IP automatically finds the point at which recording ended, and sets itself up so that you can carry in with continuous recording. Note that this operation takes several seconds: do not turn the POWER switch is turned off or replace the battery during this interval, as the automatic recording continuity will be lost.

Note also that the recording continuity is lost in the following case.

- If the POWER switch is turned on and off repeatedly.
- If the DSR-1/IP is left powered off for several hours.
- If the DSR-1/IP is subject to severe vibration while powered off.
- If for any other reason the automatic recording continuity function is unable to operate correctly.
- If the lithium battery (CR2032) is exhausted, or if no lithium battery has been fitted.

Playback — Checking Recorded Contents

Checking the Recorded Contents Immediately After Shooting — Recording Review

Immediately after shooting, you can use the recording review function to automatically rewind and play back the last 2 to 10 seconds of the recording to check the recorded contents.

Performing recording review

With recording paused, press the REC REVIEW button¹⁾ on the camera or the RET button¹⁾ on the lens.

Depending on how long you hold down the button, the tape is automatically rewound over the last 2 to 10 seconds of the recording, and then this last part of the recording is shown in the viewfinder. You can also listen to the recorded sound via an earphone or the speaker. After the recorded part is played back, the DSR-1/IP is automatically returns to the pause state.

Notes

- During recording review, do not turn the POWER switch off. The DSR-1/IP may not be able to find the continue point.
- If you press the VTR button on the camera or lens during recording review, the DSR-1/IP stops the recording review and starts recording. In this case (when ClipLink mode is OFF), it is impossible to start back space editing.

Viewing Monochrome Playback in the Viewfinder

You can view a monochrome playback of the recording in the camera's viewfinder.

- 1 Turn the DSR-1/IP's power on.
- 2 Load a cassette.

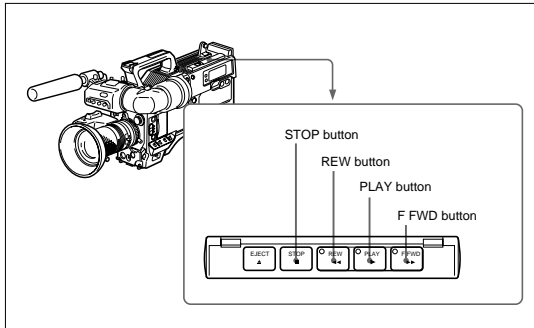
(Continued)

1) For more information about the REC REVIEW and RET buttons refer to the operating instructions for your camera.

Playback — Checking Recorded Contents

3 Press the PLAY button.

This starts playback, during which a monochrome playback of the recording is shown in the camera's viewfinder.



Operation	Step
Fast forward the tape	Press the F FWD button.
Rewind the tape	Press the REW button.
Stop the tape	Press the STOP button.

Note

If two or more series of index pictures are recorded separately on the tape, they may be played back at back space editing points.

For details about index pictures, see Chapter 5 “ClipLink Shooting”.

Viewing Color Playback

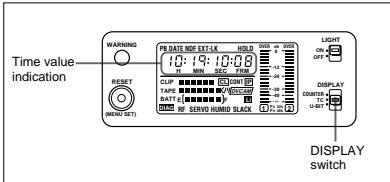
Using a color television or color video monitor, you can view a color playback (with no playback adaptors).

Connect a color television or color video monitor to the VIDEO OUT connector or the S VIDEO OUT connector. See the previous section “Viewing Monochrome Playback in the Viewfinder” for playback operation.

Switching Time Value Indications

The DSR-1/1P uses three types of time values: counter values, time code values, and user bits.

The time value is displayed in the DXC-D30/D30P/D35/D35P's viewfinder screen and in the DSR-1/1P's display window.



Use the DISPLAY switch to switch time value indications.

Type of time value	DISPLAY switch setting
Counter of tape transport time	COUNTER
Time code	TC
User bits	U-BIT

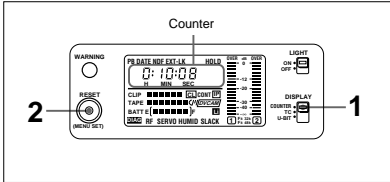
Note

The time code and user bits cannot be displayed if the tape does not have time code and/or user bits recordings or if the time code was recorded using a non-compatible method.

For details of the time value indication in the viewfinder, see the operating instructions for your camera.

Resetting the Counter

The counter value shows the tape's running time in hours, minutes, seconds, and frames format. Before starting a tape, perform the following steps to reset the counter.



1 Set the DISPLAY switch to COUNTER.

The time value indication in the display window shows the current counter value.

2 Press the RESET/(MENU SET) button.

This resets the counter shown in the viewfinder and display window as “0:00:00:00”.

The counter value starts advancing as the tape is transported. It shows negative values if the tape is rewound past the point where the counter was reset.

Note

Discontinuous recording in the tape may cause the counter to malfunction during playback.

Displaying the Date/Time

The DSR-1/1P automatically records the real time of the built-in clock on the tape in addition to time codes and video/audio signals. Perform the following steps to display the date or time instead of the time value.

1 Confirm the following.

Parts to confirm	State
Display window	The VTR menu is not displayed.
TC mode Switch	Set to the position other than PRESET/SET.

2 Set the DISPLAY switch to TC or U-BIT.

3 Press the SHIFT button.

While pressing the SHIFT button, the date or time is displayed at the location of the time value indication.

DISPLAY switch setting	Indication
TC	Time
U-BIT	Date

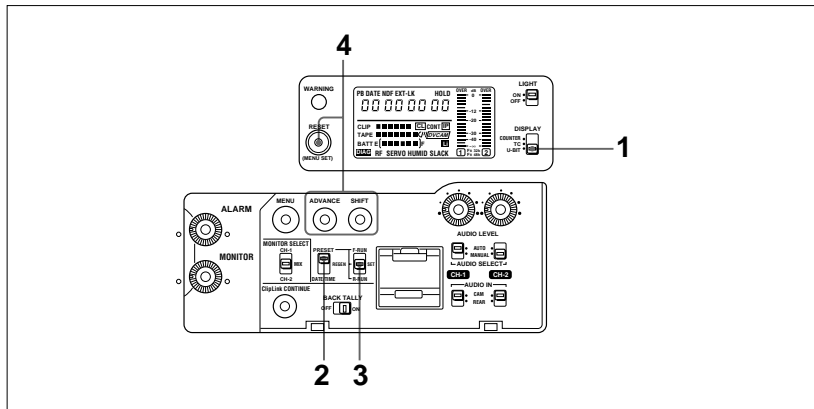
For description of how to set the DSR-1/1P's built-in clock, see “Setting the Real Time Clock and Calendar — Menu 101” on page 63.

Setting the User Bit Value

You can set the user bits as eight-digit hexadecimal values (base 16) to have the date, time, scene number, and other information inserted into the time code. When using both the time code and user bits, set up the user bits first. If you set the time code first, the internal time code generator will remain stopped while you set the user bits, which will set the time value off from the original setting.

Note

Setting the user bit value may be disallowed in some cases at ClipLink shooting. For details, see step 4 on page 56 in Chapter 5 “ClipLink Shooting”



1 Set the DISPLAY switch to U-BIT.

The user bits indication appears.

2 Set the TC mode switch 1 to PRESET.

3 Set the TC mode switch 2 to SET.

This causes the leftmost digit in the user bits indication to start blinking.

4 Set the user bits.

Operation	Step
Select a digit	Press the SHIFT button. Each time you press the SHIFT button, the next digit to the right starts blinking.
Change a value	Press the ADVANCE button. Each time you press the ADVANCE button, the displayed value is incremented to F and returns to 0.
Reset	Press the RESET/(MENU SET) button. The display returns to “00 00 00 00”.

Hexadecimal digits A to F are displayed as follows.

Hexadecimal digit	A	B	C	D	E	F
Display						

5 Perform step 6 in “Setting the Time Code Value” on page 52.

Setting the Time Code Value

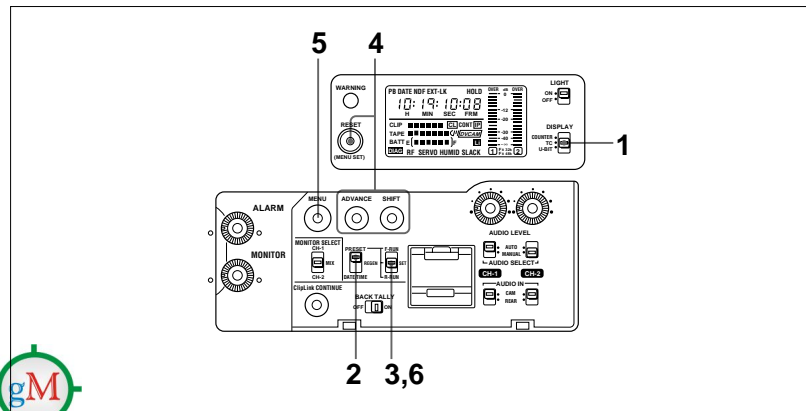
This section describes the steps for setting time code recording methods for particular shooting conditions and setting initial values.

When using both the time code and user bits, **set up the user bits first**. If you set the time code first, the internal time code generator will remain stopped while you set the user bits, which will set the time value off from the original setting.

For details of setting user bits, see “Setting the User Bit Value” on previous page.

Note

Setting the time code value may be disallowed in some cases at ClipLink shooting. For details, see step 4 on page 56 in Chapter 5 “ClipLink Shooting”



1 Set the DISPLAY switch to TC.

2 Set the TC mode switch 1 to PRESET.

3 Set the TC mode switch 2 to SET.

This causes the leftmost digit in the time code display to start blinking.

4 Set the time code initial value.

Operation	Step
Select a digit	Press the SHIFT button. Each time you press the SHIFT button, the next digit to the right starts blinking.
Change a value	Press the ADVANCE button. Each time you press the ADVANCE button, the displayed value increases.
Reset	Press the RESET/(MENU SET) button. The display returns to “00:00:00:00”.

The time code value can be set anywhere in the range of “00:00:00:00” to “23:59:59:29” (DSR-1) or “23:59:59:24” (DSR-1P).

5 For the DSR-1, use menu 204 to select the frame mode.

Operation	Step
Adjust the discrepancy between time code value and real time	Select the drop-frame mode.
Need not adjust the discrepancy between time code value and real time	Select the non-drop-frame mode.

For more information about the drop-frame/non-drop-frame mode, see “Drop-frame mode (for DSR-1 Only)” on next page.

For details of menu operations, see page 63.

(Continued)

Setting the Time Code Value

- 6 Use the TC mode switch 2 to set the desired running mode.

Operation	Setting
Time code advances freely regardless of the VTR's current operation mode.	F-RUN
Time code value advances only while recording.	R-RUN

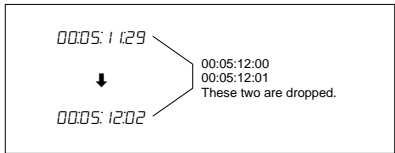
If you select F-RUN, the time code starts advancing immediately.

Drop-frame mode (for DSR-1 Only)

In the NTSC standard, the time code value is based on 30 frames per second, but the exact video frame frequency is in fact 29.97 frames per second and the real time, or 18 frames per 10 minutes.

Drop-frame mode corrects for this by skipping two frame counts at the beginning of every minute which is not a multiple of ten.

Example: When the minute value is changing from 11 to 12



In non-drop-frame mode, however, no frame counts are omitted, and there is a gradual deviation of the time code from real time.

Making the Time Code Continuous at Back Space Editing

Set the TC mode switch 2 to R-RUN and start back space editing.

For operation of back space editing, see "Back Space Editing" on page 43.

Restarting an interrupted recording

Perform the following steps to make the time code continuous when the recording has been interrupted or when the cassette tape has been removed from the DSR-1/1P between shootings.

- 1 Set the TC mode switch 1 to REGEN.

Time code advance is automatically set to R-RUN even if the TC mode switch 2 has been set to F-RUN.

- 2 Perform steps 1 to 6 of "Starting Back Space Editing at Any Tape Position" on page 44.

When the DSR-1/1P is at the recording pause state, the recorded time code is read from the tape and synchronized to the internal time code generator.

- 3 Press the VTR button on the camera or lens to restart back space editing.

Setting the Time Code to the Real Time Clock and Calendar

Set the TC mode switch 1 to DATE/TIME.

This synchronizes the time code generator to real time (recorded in the user bits) and date (recorded in the time code), using the real time clock and calendar set in menu 101.

Once you set this switch to DATE/TIME position, it is not possible to retrieve the previous value (user bits and time code) in the time code generator.

For how to set the real time clock and calendar, see "Setting the Real Time Clock and Calendar — Menu 101" on page 63.

Synchronization With External Time Code Signals — Gen-Lock

To edit and compile a recording that is shot using multiple camcorders, it is necessary to synchronize the video and time code of the various camcorders (by gen-lock).

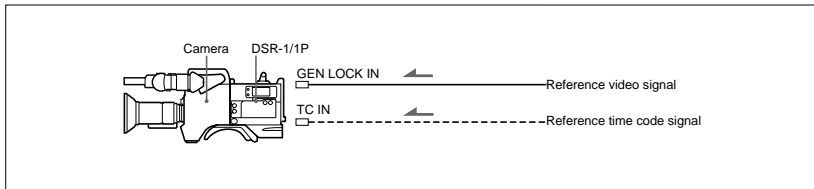
Note

Synchronization with external time code signals (by gen-lock) may be disallowed in some cases at ClipLink shooting. For details, see step 4 on page 56 in Chapter 5 "ClipLink Shooting"

Connection for Gen-Lock

Connect the reference video and time code signals to the DSR-1/1P as shown below.

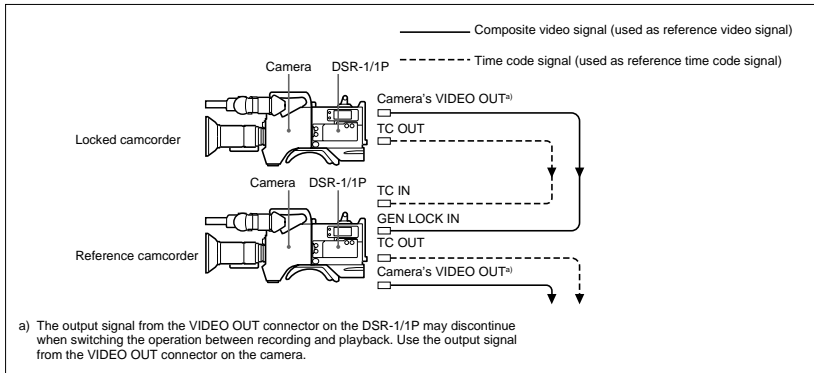
Locking the video and time code signals to an external reference signal



Locking the video and time code signals to another camcorder's video and time code signals

Using one camcorder as reference, to its video and time code signals, lock the other camcorders' video and time code signals.

If the reference camcorder is gen-locked to an external reference signal, any other connected camcorders are gen-locked to the same reference signal.



Synchronization With External Time Code Signals —Gen-Lock

Locking the Internal Time Code Generator to the Reference Time Code

Perform the following steps to synchronize the DSR-1/1P's internal time code generator to an external time code.

- 1 Set the TC mode switch 1 to PRESET.
- 2 Set the TC mode switch 2 to F-RUN.
- 3 Connect a reference time code and video signal to the DSR-1/1P.

For connections, see the previous section "Connection for Gen-Lock".

"EXT-LK" will be displayed in the display window. The internal time code generator will maintain its externally synchronized state even after you disconnect the reference time code signal. The precision of this synchronization (phase alignment) of time codes depends on the precision of the camera's sync signal generator.

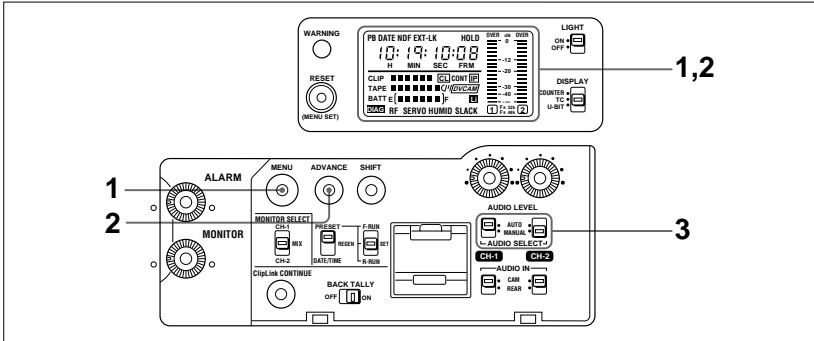
Notes

- After setting up external synchronization, allow a few seconds for the camera's sync signal generator to stabilize before recording.
- Only the time code can be externally synchronized. User bits cannot be externally synchronized.
- If you switch the setting on the DSR-1/1P's or the camera's POWER switch while the camcorder is operating under external synchronization, synchronization precision will be reduced.

Recording Using ClipLink Function

The ClipLink function is intended to be used at various stages from recording to editing. When you record using this function, index pictures are automatically recorded along with the time code, scene number, and other data, all of which make for more efficient editing.

For an overview of the ClipLink function, refer to the supplied "ClipLink™ Guide".



- 1 Perform the first two steps (pages 38 to 40) in the Chapter 3 "Shooting". Check the following points.

Check point	Method
Check the ClipLink function is on (or set it to on).	See "Selecting the ClipLink Function —Menu 211" under Chapter 6 "Menu" (page 67).
Check whether or not the cassette includes cassette memory. (The DSR-1/1P supports cassettes with up to 16 Kbits of cassette memory.)	C// appears in the display window when the loaded cassette includes cassette memory. (The ClipLink function cannot be used unless C// appears in the display window.)
Make sure that the lithium battery has been correctly inserted and is not used up.	LI appears in the display window if the lithium battery has not been inserted or is used up.

CLIP and IP appear in the display window.

Display	Meaning
CLIP	The DSR-1/1P is in ClipLink mode.
IP	The DSR-1/1P is in ClipLink mode and can record index pictures.

Notes

- If you use a cassette that contains data recorded via a different VCR (not the DSR-1/1P), when you enter a cassette name/number in the cassette

memory, you may lose any data that was previously written to the cassette memory. Also, if you use a cassette that contains data recorded in ClipLink mode on the DSR-1/1P for recording on a different VCR, you may lose any data that was previously written to the cassette memory.

- When you power the DSR-1/1P or insert a cassette, black squares (■) blink in the place of the clip remaining indication in the display window (during this, the cassette memory data is being checked). Start recording after the blinking ends, or the ClipLink function will be disabled.
- When CL appears in the display window, it means that data has already been recorded into the cassette memory. If you record under this condition whether the ClipLink function is available or not, the existing cassette memory data will be overwritten. To avoid this, you can either insert a new cassette or follow the procedure for appending cassette memory data, as described in the section "Resuming Recording in ClipLink Mode" (page 58). If the CL is flashing, it means abnormality of the cassette memory. In this case, it is impossible to continue recording from that data on ClipLink mode.

(Continued)

Recording Using ClipLink Function

- 2 Check the number and perform one of the following responses.

Indication	Meaning/response
CLIP ■■■■■■	Adequate recording capacity remains.
CLIP ■	Capacity for ten or fewer index pictures remain. Load a new cassette if the number is not sufficient.
Other	Check the number of recordable index pictures remaining, and load a new cassette if the number is not sufficient.

The number of recordable index pictures also appears in the time value indication area for as long as you hold down the ADVANCE button.

For details of this display, see “**1** Display window” in “Display Section” under Chapter 1 (page 11).

Note

The number of recordable clips varies with cassette memory capacity. Up to 45 clips (index pictures) can be recorded in a 4-Kbit cassette memory and up to 198 clips (index pictures) can be recorded in a 16-Kbit cassette memory.

- 3 Set the AUDIO SELECT (CH-1/CH-2) switch to AUTO or MANUAL (see page 40).
- 4 Set up and adjust the camera according to your shooting objectives, then press the VTR button on the camera or the lens.

For details of camera settings and adjustments, see your operating instructions for the camera.

Recording begins when the TALLY indicator stays lit after blinking for a moment. The DSR-1/1P enters ClipLink continue mode (in which back space editing is possible using ClipLink function) and indication **CONT** appears in the display window.

During recording, the recording start (Rec IN) point, the time code (HH:MM:SS format) and index pictures are recorded into the DSR-1/1P’s internal memory.

Note

When **CONT** appears, regardless of the setting of the TC mode switch 1, the time code generator automatically enters REGEN mode. Consequently, you cannot freely specify a time code nor can you use the external synchronization (genlock) function.

- 5 To stop recording, press the VTR button on the camera or the lens.

This sets recording pause mode. The time codes (HH:MM:SS) for the current clip (contents between the Rec IN and Rec OUT points) are recorded along with the scene number (as scene 001) in the cassette memory. The last index picture in the recorded scene is also recorded.

Note

While data is being recorded in the cassette memory, cutting the power supply or opening the cassette holder is disallowed. If you turn the POWER switch off or press the EJECT button, black squares (■) blink in the place of the clip remaining indication in the display window. When the data has been recorded, the power supply is cut or the cassette is ejected.

To continuously record the next scene
Repeat steps 4 and 5.
The scene number will be automatically incremented from the previous number.

If you have stopped the recording, see “Resuming Recording in ClipLink Mode” (page 58).

When using the DSR-1/1P with the DXC-D30/D30P/D35/D35P camera, you can set or clear an “NG” designation for the previously recorded scene before shooting the next scene.

For details of this operation, see the operating instructions for the DXC-D30/D30P/D35/D35P.

Notes

- During recording pause, pressing the STOP/PLAY/FWD/REW buttons, performing edit search (with the DXC-D30/D30P/D35/D35P), or ejecting the cassette will interrupt the ClipLink shooting. With this state, it is impossible to start back space editing using ClipLink function. (The ClipLink continue mode is canceled and indication **CONT** in the display window disappears.) To perform back space editing at the recording stop position, press the ClipLink CONTINUE button before resuming recording. If you do resume recording without pressing this button first, the previous recorded data and index pictures will be overwritten or otherwise invalidated.
- Each time you press the STOP button, the number of remaining index pictures is decremented by one. If you resume recording with the same VCR, the number of remaining index pictures is automatically incremented by one.

For details, see “Resuming Recording in ClipLink Mode” (page 58).

- Do not unplug the power supply connector (connected to a battery pack or AC outlet) while the POWER switch is still set to ON, as this may cause the ClipLink function to operate abnormally. Be sure to set the POWER switch to OFF before disconnecting the power supply.

Setting Editing Points While Shooting (When Using the DXC-D30/D30P/D35/D35P)

When shooting with the DSR-1/1P and the DXC-D30/D30P/D35/D35P, you can use the DXC-D30/D30P/D35/D35P’s TAKE button to record a time code for a cue point or a Mark IN/OUT point.

For details, refer to the operating instructions for the DXC-D30/D30P/D35/D35P.

Setting cue points

The following data is recorded onto the cassette when you specify a cue point to highlight a scene.

- Time codes (HH:MM:SS) for Rec IN/OUT points
- Time codes (HH:MM:SS:frame) for cue points
- Scene number: The scene number counter is automatically incremented with each Rec OUT point specification.
- NG designation, cassette name/number (if set from the camera)
- Index pictures for all Rec IN points: these are recorded each time recording is stopped.

Setting Mark IN/OUT point

The following data is recorded onto the cassette when you specify Mark IN/OUT points while shooting continuously at length, instead of during linked recording of each scene.

- Time codes (HH:MM:SS) for Mark IN/OUT points
- Scene number: The scene number counter is automatically incremented with each Mark OUT point specification.
- NG specification, cassette name/number (if set from the camera)
- Index pictures for all Mark IN points: these are recorded each time recording is stopped.

Note

The time codes for Rec IN/OUT points are not recorded.

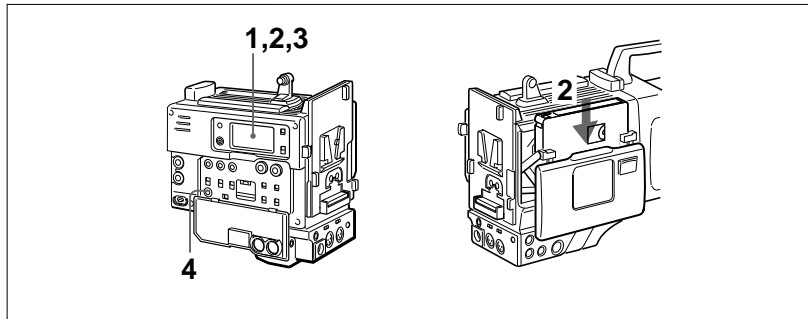
Resuming Recording in ClipLink Mode

During recording pause in ClipLink mode, pressing the STOP/PLAY/F FWD/REW buttons, performing edit search (with the DXC-D30/D30P/D35/D35P), or ejecting the cassette will interrupt the ClipLink shooting. With this state, it is impossible to start back space editing using ClipLink function. (The ClipLink continue mode is canceled and indication **CONT** in the display window disappears.) If you resume recording on the same cassette, the previously recorded data will be overwritten.

You can avoid this and continue recording in ClipLink mode from the previous recording stop point by performing the following steps.

Note

If you stop recording during the first ten seconds of recording, you may not be able to use these steps to continue recording in ClipLink mode.



1 Perform step 1 (page 38) in Chapter 3 “Shooting”.

2 Insert a cassette if one is not already loaded.

The **CL** and **CP** indications should appear in the display window.

Note

If the **CL** is flashing, it means abnormality of the cassette memory. In this case, it is impossible to continue recording from that data on ClipLink mode.

3 Check the following points.

Check point	Result and response
CLIP and IP appear in the display window	If these indications do not appear in the display window, access the VTR menu and set ClipLink function to on (see page 67).
Remaining clips	Make sure there are enough capacity for recording index pictures (see page 13).

4 Press the ClipLink CONTINUE button.

The tape remaining indication in the display window flashes as the DSR-1/IP automatically searches the recording stop point. When it finds the recording stop point, it stops and enters recording pause mode.

Once it has stopped, check that the **CONT** indicator appears in the display window.

To find the recording stop point efficiently

If you press the ClipLink CONTINUE button after rewinding or fast forwarding the tape to the position between the previous recording's start point and stop points, the recording stop point can more efficiently be found via an automatic search function.

Note

Do not turn the camera's power switch on or off while the DSR-1/IP is searching for the recording stop point, as it might disable the search function. If, for this or another reason, the recording stop point cannot be found, the **CONT** indicator flashes in the display window.

5 Press the VTR button on the camera or the lens.

This starts the recording function.

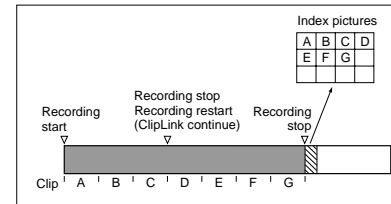
6 When the recording is finished, set recording pause mode (or specify a Mark OUT point).

The time code (HH:MM:SS), scene number (serial number of scene during which recording was stopped) and other data for the current clip (contents between the Rec IN and Rec OUT points or between Mark IN and Mark OUT points) are recorded into cassette memory. The index pictures for the recorded scene are recorded after the recorded scene.

Repeat steps 5 and 6 to start recording the next scene.

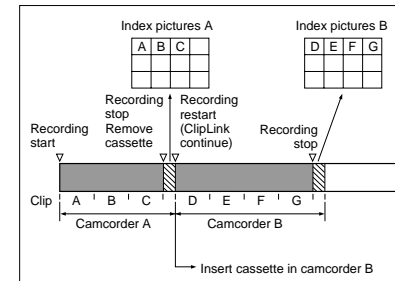
The index pictures are recorded onto the tape as described below.

When all index pictures are recorded at the end of the recordings



When two or more series of index pictures are separately recorded

Two or more series of index pictures may be recorded if ClipLink shooting is once interrupted due to ejecting the cassette and resumed (in case of changing the camcorder on resuming, for example).



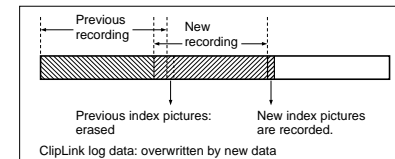
If there is no need for ClipLink continue

It is not necessary to press the ClipLink CONTINUE button when restarting recording.

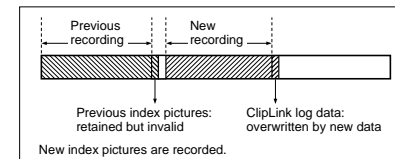
See step 4 in the previous section “Resuming Recording in ClipLink Mode”.

The contents recorded on the cassette may differ in this case depending on the settings when the recording is restarted.

When recording in ClipLink mode is started and previous recording is overwritten



When recording in ClipLink mode is started after a previous recording



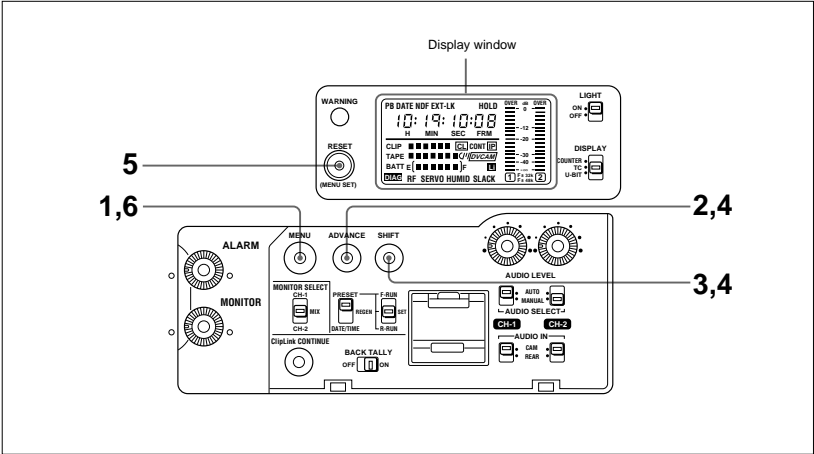
Contents of the VTR Menu

You can use the VTR menu to make the following settings.

Operation	Menu No.	Reference
Real time clock and calendar settings	101	Page 63
Cumulative hour counts: <ul style="list-style-type: none">• Head drum operating hours• Tape transport hours• Operating (power-on) hours	201	Page 63
Frame mode selection for time code (DSR-1 only)	204	Page 63
Battery capacity indication selection	206	Page 64
Standby-on period setting	207	Page 64
Use auto-check function	210	Page 65
Selection of ClipLink function	211	Page 67
Audio recording mode selection	212	Page 67
Audio reference level selection	213	Page 68
Fade-in/fade-out setting for the audio recording start and stop points	214	Page 68
Use setup add	220	Page 69
Use setup remove	221	Page 69

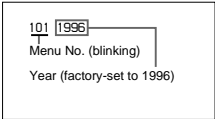
VTR Menu Operation

Basic Operation



1 Press the MENU button.

“DIAG” appears in the display window and the time data display in the display window switches to the menu display.



2 Press the ADVANCE button repeatedly until the desired menu appears.

3 Press the SHIFT button.

This shows the current settings for the menu selected by step 2. The setting can be changed for the digit that is blinking.

To exit from changing settings
Press the MENU button to close the menu.

4 Change the settings.

Operation	Step
Select digit to be changed	Press the SHIFT button.
Change the value	Press the ADVANCE button.

5 Press the RESET/(MENU SET) button.

This records the new setting and returns to a blinking display of the menu number.

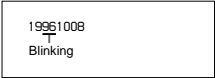
6 Press the MENU button.

This returns the display window to the display shown before the VTR menu.

Menu 101 Setting the Real Time Clock and Calendar

1 Display menu 101 and press the SHIFT button.

The current calendar setting appears in the setting mode format (yyyymmdd).
Example: October 8, 1996



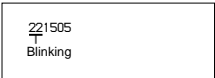
Note
The first two digits of the year setting cannot be changed.

2 Use the SHIFT and ADVANCE buttons to set the desired date.

If there are no more new settings to be made, go directly to step 5.

3 Press the SHIFT button while the data display is blinking (Example: 19961008).

The current time (real time clock) setting is displayed.
Example: 8:15:05 PM



4 Use the SHIFT and ADVANCE buttons to set the current time.

5 Press the RESET/(MENU SET) button.

This starts the clock advance operation.

6 Press the MENU button.

This returns the display window to the display shown before the VTR menu.

The date set can be displayed in the time value indication (see page 49) in the following way.

On the DSR-1: Displayed in mmdyyy format (Example: 10081996)
On the DSR-1P: Displayed in ddmmyyyy format (Example: 08101996)

Menu 201 Checking the Total Operating (Power-On) Hours

1 Display menu 201 and press the SHIFT button.

Pressing the SHIFT button cycles through the following display items.

Indication	Example
Head drum operating hours	A 0429Hr
Tape transport hours	b 0720Hr
Total operating hours	C 0853Hr
Menu number	201 0492

2 Check the indication, then press the RESET/(MENU SET) button, followed by the MENU button.

This returns the display window to the display shown before the VTR menu.

Menu 204 Selecting Frame Mode (DF/NDF) for Time Code (for DSR-1 Only)

Select frame modes when setting the time code.
Drop-frame mode (factory setting): When adjusting the discrepancy between time code value and real time
Non-drop-frame mode: When you need not adjust the discrepancy between time code value and real time

For details of time code settings, see page 51.

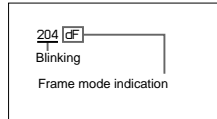
(Continued)

VTR Menu Operation

1 Display menu 204.

The menu number and the current frame mode setting are shown.

Example: dF (drop-frame mode)

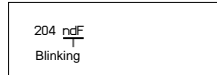


If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the frame mode start blinking, then press the ADVANCE button.

This switches the frame mode display as shown below.

Example: n dF (non-drop-frame mode)



Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and the display window returns to the display shown before the VTR menu.

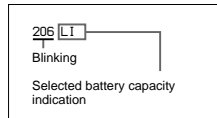
Menu 206 Selecting Battery Capacity Indication

This selects the indication type of battery capacity.

1 Display menu 206.

The selected menu number is displayed, along with the name of the currently selected battery.

Example: LI (Indication for the BP-L40/L60A)



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button until the desired battery name is displayed, then press the ADVANCE button.

Pressing the ADVANCE button cycles through the following indications.

LI → Antn → nI

Indication	Meaning
LI (factory setting)	Indication for BP-L40/L60A battery is selected.
Antn	Indication for Anton Bauer Magnum battery is selected ^{a)} .
nI	Indication for NP-1B/BP-90A battery is selected.

a) To use the Anton Bauer Magnum Battery System, a special battery mount developed by Anton Bauer Corporation is required.
For details, contact an Anton Bauer dealer or your Sony dealer.

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and the display window returns to the display shown before the VTR menu.

Menu 207 Setting Standby-On Period

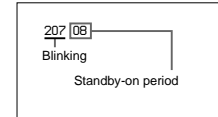
At recording pause state, the DSR-1/1P waits for a certain standby-on period and then automatically switches to standby-off mode. This standby-on period can be set in advance.

For details of switching between standby-on and standby-off mode, see "If there is a long period before shooting the next scene" on page 44.

1 Display menu 207.

The selected menu number is displayed, along with the current standby-on period setting (in minutes).

Example: 8 minutes



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button until the standby-on period starts blinking, then press the ADVANCE button.

Each press of the ADVANCE button changes the setting as follows.

08 (factory setting) → 01 → 03 → 05

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and the display window returns to the display shown before the VTR menu.

Menu 210 Using Auto-Check Function

On the DSR-1/1P, the internal check can be automatically performed using the auto-check function. Meanwhile, a test recording and playback are also performed for about 1 minute.

Before shooting, it is desirable to perform auto-check and make sure for problems in VCR's internal operations and the VCR/camera connection through the result of the internal check displayed in the display window and the video and audio recording qualities.

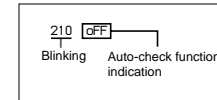
Preparations for testing

Make preparations as shown in the table below.

Preparation	Refer to
Connect the DSR-1/1P to the camera	Page 24
Connect a monitor to the VIDEO OUT or S VIDEO OUT connector on the DSR-1/1P	Page 15
Connect an earphone or headphones to the EARPHONE connector on the DSR-1/1P	Page 15
Prepare a cassette for test recording/playback	Page 35

To perform the auto-check

1 Display menu 210.

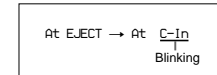


2 Press the SHIFT button to make the auto-check function indication (oFF) start blinking, then press the ADVANCE button to change the indication to "on".

To cancel the auto-check function, press the MENU button to close the menu.

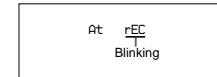
3 Press the RESET/(MENU SET) button.

This changes the display and opens the cassette holder. If there is a cassette in the holder, it is ejected (except during recording).



4 Insert the cassette and close the cassette holder.

The display changes to the following, and the tape is loaded.



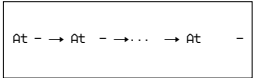
5 Use the tape transport buttons to change the tape position for test recording if necessary, or advance to step 6.

(Continued)

VTR Menu Operation

6 Press the VTR button on the camera or lens.

Test recording starts.
The display changes as shown below during recording. (The hyphen following “At” moves to right.)



After about 1 minute, the tape is rewind to the recording start position and playback starts. The following is displayed during playback.



7 Check the recording quality of the playback video on the viewfinder or monitor screen. Check the recording quality of the playback audio from the earphone or headphones.

If the recording quality is poor

There may be some kind of problem whether or not it is detected by the internal check. Refer to the section “Troubleshooting”(page 74) and repeat the test. If the recording quality remains poor, contact your Sony dealer.

When playback ends, the internal check result is displayed and the DSR-1/1P enters recording pause mode.

8 After confirming the result (see the next section “Confirming the result”), press the MENU button.

The display window returns to the display shown before the VTR menu.

Confirming the result

The result of the internal check is displayed in code as shown in the table below. When a problem is indicated, follow the instructions to check the camera, DSR-1/1P and cassette. If no errors can be found, contact your Sony dealer. Also, be sure to check the quality of the playback video and audio (see step 7).

Display	Diagnostic result
At good	VCR's internal operations are normal. If the video and audio recording qualities are normal, the unit is ready for use.
At ng-01	There may be a problem in the VCR or the cassette. Contact your Sony dealer.
At ng-02	There may be a problem in VCR's internal operations or data loading from the tape. Clean the video heads using the DVM-12CL Cleaning Cassette (see page 71) and repeat the auto-check. If the result is the same, contact your Sony dealer.
At ng-03	There may be a problem in the VCR/camera connection. Check whether the camera is powered and the camera connector on the DSR-1/1P fits firmly in the VTR connector on the camera (see pages 24 to 28). If not, correct the error and repeat the auto-check. If the result is the same, contact your Sony dealer.
At ng-04	Check whether the REC/SAVE switch is set to SAVE. If so, repeat the auto-check with setting the switch to REC or using another cassette whose REC/SAVE switch is set to REC. If the result is the same, contact your Sony dealer.
At ng-05	Check whether a cassette is inserted. If not, insert a cassette and repeat the auto-check. If the result is the same, contact your Sony dealer.
o-HAUL	If the video and audio recording qualities are normal, the unit is ready for use. However, the unit requires service. It is desirable to consult your Sony dealer.
At Abort	The test recording or playback and internal check have aborted (when a tape transport button was pressed during recording or playback or when the tape ended). To resume the auto-check, press the MENU button to close the menu and perform the procedure described in the previous section “To perform the auto-check”.

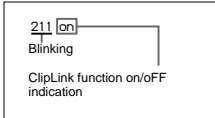
Menu 211 Selecting ClipLink Function

This setting must be made when not using the ClipLink function.

For details of the ClipLink function, see Chapter 5 “ClipLink Shooting”.

1 Display menu 211.

The ClipLink function is factory-set to on.



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the ClipLink function on/off indication start blinking. Press the ADVANCE button to change the indication to oFF.

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and display window returns to the display shown before the VTR menu.

Menu 212 Selecting Audio Recording Mode

The audio recording mode can be set to either of the following modes.

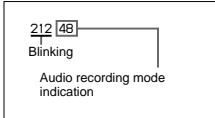
48-kHz mode (factory setting): Enables two-channel recording mode with 48-kHz sampling frequency.

32-kHz mode: Enables four-channel recording mode with 32-kHz sampling frequency (for channels 1 and 2).

1 Display menu 212.

The menu number and current audio recording mode is displayed.

Example: 48 (2-channel mode with 48-kHz sampling frequency)

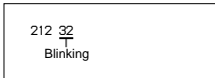


If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the audio recording mode indication start blinking, then press the ADVANCE button.

This switches the mode setting to the other audio recording mode.

Example: 32 (4-channel mode with 32-kHz sampling frequency)



3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and display window returns to the display shown before the VTR menu.

VTR Menu Operation

Menu 213 Selecting Audio Reference Level

The audio reference level can be set to either of the following.

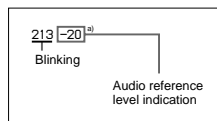
–20 dB (factory setting for DSR-1) or –18 dB (factory setting for DSR-1P): Audio reference level for professional use

–12 dB: Audio reference level commonly used for consumer DV (The maximum level is 0 dB.)

1 Display menu 213.

The menu number and current audio reference level is displayed.

Example: –20 dB (for DSR-1) or –18 dB (for DSR-1P)



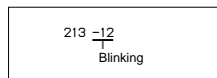
a) For DSR-1P: –18

If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the audio reference level display start blinking, then press the ADVANCE button.

This switches the setting to the other audio reference level.

Example: –12 dB



3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and display window returns to the display shown before the VTR menu.

When using the DSR-1/1P in a editing system containing both consumer DV and professional equipment, setting the audio reference level to –12 dB is recommended.

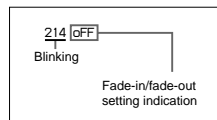
Changing the audio reference level setting from –20 dB (or –18 dB) to –12 dB increases the audio recording level by 8 dB (or 6 dB) whether the AUDIO SELECT (CH-1/CH-2) switch is set to AUTO or MANUAL.

Menu 214 Setting Fade-In/Fade-Out for the Audio Recording Start and Stop Points

You can reduce noise at back space editing points (if necessary) by setting the fade-in/fade-out to on. The fade-in/fade-out transition time is within one frame ($1/30$ seconds for DSR-1 or $1/25$ seconds for DSR-1P).

1 Display Menu 214.

The fade-in/fade-out is factory-set to off.



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the fade-in/fade-out setting indication start blinking, then press the ADVANCE button to change the setting to on.

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and the display window returns to the display shown before the VTR menu.

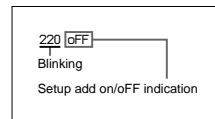
Menu 220 Using Setup Add (for DSR-1 Only)

Use this menu to add setup to the playback video signals.

For details on the setup add or setup remove, see “How to use the setup add/setup remove” on the right.

1 Display menu 220.

The setup add is factory-set to off.



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the setup add on/off indication start blinking, then press the ADVANCE button to change the setting to on.

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and display window returns to the display shown before the VTR menu.

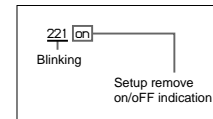
Menu 221 Using Setup Remove (for DSR-1 Only)

Use this menu to remove the setup that was added to the video signals at recording.

For details on the setup add or setup remove, see “How to use the setup add/setup remove” on the right.

1 Display menu 221.

The setup remove is factory-set to on.



If the setting does not need to be changed, press the MENU button to close the menu.

2 Press the SHIFT button to make the setup remove on/off indication start blinking, then press the ADVANCE button to change the setting to off.

3 Press the RESET/(MENU SET) button and then the MENU button.

The settings are recorded and display window returns to the display shown before the VTR menu.

How to use the setup add/setup remove

Use the setup add/setup remove as shown below according to your shooting conditions.

For menu operations related to the setup add/setup remove, see “Using Setup Add — Menu 220” or “Using Setup Remove — Menu 221” on the left.

When using a camera signal with setup

Set the setup remove to on. During recording, the signal of the image being shot contains setup when it is output from the DSR-1/1P's S VIDEO OUT and VIDEO OUT connector. During playback, the setup is removed from the output video signal.

To have the setup added during playback, set the setup add to on.

When using a camera signal without setup

Set both the setup add and setup remove to off.

Cleaning the Video Heads

Always use the special-purpose Sony DVM-12CL Cleaning Cassette for cleaning the audio and video heads. Follow the instructions with the cleaning cassette carefully, as inappropriate use of the cleaning cassette can damage the heads.

Note

The DVM-12CL Cleaning Cassette can be used only once. When the DVM-12CL is loaded in the DSR-1/1P, only STOP, PLAY and EJECT buttons function.

Replacing the video heads

If cleaning the video heads fails to restore picture quality, the heads may be due for replacement. Keep a check of the hours of head drum operation: with normal use, the heads should need replacing after about 2,000 hours of use. When the heads need replacement, contact your Sony dealer.

Check the hours of head drum operation using the VTR menu. For details see "Checking the Total Operating (Power-On) Hours — Menu 201" on page 63.



Replacing other parts

For replacement of all parts other than the video heads, contact your Sony dealer.

Warning System

When the DSR-1/1P is powered on, or if a fault occurs during operation, a warning is given in the following ways:

- By warning indications in the display window.
- By means of the WARNING indicator together with a warning tone from the speaker or earphone.

• By the warning indicators in the viewfinder.
(Depending on the video camera model, this feature may not be available.)

You can adjust the volume of the warning tone with the ALARM knob. When this knob is turned to the minimum position, there is no sound output at all.

Operation warnings and action to be taken

DSR-1/1P				Camera		Problem	Machine action	What to do
Display window	WARNING indication	Warning tones	Viewfinder indicators	REC/TALLY	BATT			
Warning indication	State (blinking/Continuous)	Continuous 1 beep/s 4 beeps /s	Continuous 1 beep/s 4 beeps /s	Continuous 1 beep/s 4 beeps /s				
RF	Continuous ^{a)}					Video head gaps clogged or problem in recording circuit.	After detecting head clogging, recording continues but quality is poor.	Clean the heads. If the problem persists, power off, and consult your Sony dealer.
SERVO	Continuous ^{a)}					Servo lock lost.	Recording continues but quality is poor.	Power off, and consult your Sony dealer.
HUMID	Continuous					Condensation on head drum.	The DSR-1/1P stops, and all operations are inhibited except eject.	Without powering off, wait until the HUMID indication disappears.
SLACK	Continuous					The tape cannot be wound properly.	Operation stops.	Consult your Sony dealer before doing anything. ^{d)}
TAPE	Blinking ^{a)} (1 blink/s)					Close to the end of tape.	Operation continues.	Replace the cassette as soon as possible.
	Blinking (4 blinks/s)					End of tape.	Recording, playback or fast forward stops.	Replace the cassette or rewind.
BATT	Blinking (1 blink/s)					Battery almost exhausted.	Operation continues.	Replace the battery as soon as possible.
	Blinking (4 blinks/s)					Battery exhausted.	Operation stops.	Replace the battery.

a) During recording or at recording pause.

b) Except during playback, fast forward, rewind and recording review

c) During recording only

d) Do not operate the DSR-1/1P with "SLACK" indication displayed or **the tape may be damaged.**

For details of warning messages displayed in the viewfinder, see the operating instructions for your camera.

Condensation

If you move the VCR suddenly from a very cold place to a warm place, or use it in a very humid location, condensation may form on the head drum. If the VCR is operated in this state, the tape may adhere to the drum, and cause a failure or even permanent damage. Take the following steps to prevent this from happening:

- Remove the cassette before moving the unit from a very cold place to a warm place.
- Before inserting a cassette, turn the power on, and check that the HUMID indication is not showing in the display window. If it is showing, wait — do not insert a cassette until the HUMID indication disappears. You can save waiting time if you keep the VCR powered.

For details of cassette insertion and removal, see the section "Shooting" on page 38, and for details of the HUMID indication, see the section "Warning System" on page 72.

Troubleshooting

You can use this chart to establish possible causes of an apparent problem; always double-check before sending the unit for repair. If a problem persists, contact your Sony dealer.

Troubleshooting chart

Symptoms	Cause	Remedy
The unit does not power on when you turn the POWER switch on.	There is no battery pack loaded.	Load a battery pack (page 31).
	The battery pack has reached the end of its usable life.	Replace the battery pack with a fully charged one (page 31).
	The AC power adaptor is not connected, or it is not turned on.	Connect the AC power adaptor (page 34).
The tape transport does not operate when you press either VTR button.	The POWER switches of the camera and unit is turned off.	Turn the both POWER switches on (page 10).
	The unit has reached the end of tape.	Rewind the tape, or load a new cassette (page 39).
	The cassette is set record-inhibited.	Either load a new cassette, or release the record-inhibit (page 36).
	An incorrect type of DVCAM or DV cassette is loaded. (The C// indication blinks.)	Load a correct type of DV or DVCAM cassette (page 35).
The tape transport does not operate when you press any tape transport button.	The unit has reached the end of tape.	Either rewind the tape, or load a new cassette (page 39).
	The cassette holder is not solidly closed after the cassette is inserted.	Press on the "PUSH" indication to close the holder solidly (page 39).
The video and audio output is not present.	The POWER switch is turned off.	Turn the POWER switch on (page 10).
The power supply cuts while operating.	The battery pack is exhausted.	Replace the battery pack with a fully charged one (page 31).
The battery goes dead very quickly.	The operating temperature is very low.	Recharge the battery pack, or replace with a new fully charged one (page 31).
	The battery pack is inadequately charged.	
It is not possible to eject the cassette.	The battery pack is exhausted.	Replace the battery pack with a fully charged one (page 31).
	The POWER switch is turned off.	Turn the POWER switch on. (page 10)
	The cassette holder is not solidly closed after the cassette is inserted.	Press on the "PUSH" indication to close the holder solidly and then press the EJECT button (page 39).
The playback picture quality is poor.	The video heads are dirty.	Clear the video heads using a DVM-12CL Cleaning Cassette (page 71).
The playback picture dose not appear.		
The playback sound dose not hear.	There is condensation on the head drum.	Remove the cassette, power off, and wait until the condensation has evaporated (page 73).
All controls except the EJECT button are disabled.		
Audio recording is not possible.	The AUDIO LEVEL (CH-1/CH-2) knobs are set to the minimum level.	Adjust the setting of the AUDIO LEVEL (CH-1/CH-2) knobs (page 17).
The recorded sound is distorted.	The audio level is too high.	Adjust the setting of the AUDIO LEVEL (CH-1/CH-2) knobs, and record again (page 17).
The recorded sound has a high noise level.	The audio level is too low.	Adjust the setting of the AUDIO LEVEL (CH-1/CH-2) knobs, and record again (page 17).
The indication "Er91-13F" appears in the display window.	The DSR-1/1P has failed in loading or saving the cassette memory data.	Load a new cassette (page 39).
The cassette is automatically ejected.	An incorrect type of cassette is loaded.	Load a correct type of cassette (page 35).

Troubleshooting chart (continued)

Symptoms	Cause	Remedy
The time code setting is not possible.	At the recording, the ClipLink function is set to on (meaning ClipLink shooting is allowed) in menu 211, CONT is displayed in the display window and the time code generator is in the REGEN mode.	Only the REGEN mode can be used for ClipLink shooting. If you will not perform ClipLink shooting, set the ClipLink function to oFF (see page 67).
The time code value does not advance though the TC mode switch 1 or 2 is set to the F-RUN or DATE/TIME.		

Notes on Use

Use and storage locations

Avoid using or storing the unit in the following places:

- Where it is subject to extremes of temperature (outside 0°C to 40°C (32°F to 104°F)).
- Note that in summer the temperature in a car with the windows closed can reach 50°C (122°F).
- Very damp or dusty places.
- Where rain is likely to reach the unit.
- Places subject to severe vibration.
- Near strong magnetic fields such as radio or TV transmitters.

Avoid violent impacts

Dropping the unit, or otherwise imparting a violent shock to it, is likely to cause it to malfunction.

Do not cover with cloth

While the unit is in operation, do not cover it with a cloth or other material. This can cause the temperature to rise, leading to a malfunction.

When closing the cassette holder

Be careful not to catch your fingers between the cassette holder and the body of the unit.

After Use

Turn the POWER switch off.

When not used for a period of time

Remove the battery pack.

Care

If the unit is dirty, wipe it with a dry cloth. For severe dirt, use a soft cloth steeped in a small amount of neutral detergent, then wipe dry. Do not use volatile solvents such as alcohol or thinners, as these may damage the finish.

Shipping

- Always remove the cassette before transporting the unit.
- When transporting the unit, as far as possible use either the carrying case or the original packing. If shipping the unit as freight by truck, ship or airplane, pack it in the carrying case, then pack the carrying case in its own packing or similar.

Specifications

General

Power requirements
12 V DC $\pm 5\%$
AC-550/550CE/DN1/DN2A or
CMA-8A/8ACE AC adaptor is
usable.

Power consumption
12 W (10 W in recording mode
with the DXC-D30/D30P/D35/
D35P)

Continuous recording time
Approx. 75 minutes (with the
DXC-D30/D30P/D35/D35P and
BP-L40 battery pack)

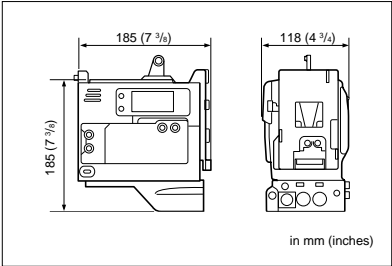
Operating temperature
0 °C to 40 °C (32 °F to 104 °F)

Operating humidity
25% to 85% (cannot be used when
condensation present)

Storage temperature
-20 °C to +60 °C (-4 °F to
+140 °F)

Mass
Approx. 2.85 kg (6 lb 4 oz)
(including BP-L40 battery pack
and the PDVM-40ME cassette
tape)

External dimensions



Tape transport system

Tape speed
Approx. 28.2 mm/s

Recording/playback time (using PDV-184ME)
Maximum 180 minutes

Fast forward/rewind time (using PDV-184ME)
Maximum 12 minutes

Cassette tapes used

Model name	Size
PDV-64ME/94ME/124ME/184ME	Standard size
PDVM-12ME/22ME/32ME/40ME	Mini size

Video system (at playback with the DSR-85/85P)

Bandwidth	Luminance (Y)	DSR-1: 30 Hz to 5.0 MHz ± 1.0 dB DSR-1P: 25 Hz to 5.5 MHz $\pm 1.0/-2.0$ dB
	Chrominance (R-Y/B-Y)	DSR-1: 30 Hz to 1.5 MHz $\pm 1.0/-5.0$ dB DSR-1P: 25 Hz to 2.0 MHz $\pm 1.0/-2.0$ dB
S/N ratio	Luminance	DSR-1: Min. 55 dB, DSR-1P: Min. 55 dB
K-factor (K2T, KPB)		Max. 2%
Y/C time delay		Max. 30 nsec.

Audio system (at playback with the DSR-85/85P)

Frequency response	2-channel mode: 20 Hz to 20 kHz $\pm 0.5/-1.0$ dB 4-channel mode: 20 Hz to 14.5 kHz $\pm 0.5/-1.0$ dB
Dynamic range	Min. 80 dB
Distortion (THD) (1 kHz reference level, 48 kHz)	Max. 0.08%

Inputs and outputs

Input connectors

AUDIO IN CH-1/CH-2 (XLR 3-pin, $\times 2$, female)
-60 dB, 3 k Ω
+4 dBu, 10 k Ω
(0 dBu=0.775 Vrms)

GEN LOCK IN (BNC)
1.0 V p-p, 75 Ω

TC IN (BNC)
0.5 to 18 Vp-p, 10 k Ω

Camera connector (PRO 76-pin DIGITAL or PRO
50-pin)

DC IN (XLR 4-pin, male)

Output connectors

AUDIO OUT CH-1/CH-2 (phono jack)
-10 dBu, 47 k Ω

VIDEO OUT (BNC)
1.0 V p-p, 75 Ω

S VIDEO OUT (DIN 4-pin)
1.0 Vp-p, 75 Ω

TC OUT (BNC)
1.0 Vp-p, 75 Ω

DC OUT (XLR 4-pin, female)

EARPHONE (mini-jack)
8 Ω , variable $-\infty$ to -15.5 dBu

Accessories supplied

Shoulder strap (1)
Connector cap (1)
Lithium battery (CR2032) (1)
M4 \times 6 screws (2)
M4 \times 12 screws (2)
Operating instructions (1)
ClipLink™ Guide (1)

Design and specifications are subject to change
without notice.

Related Equipment

DXC-D30/D30P/D35/D35P Color Video Camera
DXC-637/537A/327A/327B (or DXC-637P/537AP/
327AP/327BP) Color Video Camera
NP-1B and BP-L40/L60A/90A Battery Packs
BC-410/410CE/L50/L100/L100CE and BC-1WD/
1WDCE Battery Chargers
DC-L1 Battery Adaptor (for NP-1B), DC-L90 Battery
Adaptor (for BP-90A)
AC-550/550CE/DN1/DN2A and CMA-8A/8ACE AC
Adaptors
ME-20B Magnetic Earphone
WRT-810A/830A UHF Synthesized Wireless
Microphone
WRR-810A/855A/860A UHF Portable Tuner
BTA-801 Portable Tuner Mount Adapter (for WRR-
855A)
LC-421 Carrying Case

Glossary

Composite video signal

A composite video signal includes a video signal, burst signal, and sync signal.

Condensation

Condensation refers to tiny droplets of water that can appear in a device, such as in the tape transport system. When condensation occurs on a video head drum, the tape may stick to the drum, which can damage not only the tape but also the VCR unit.

Digital VCR

A digital VCR converts analog video signals to digital signals which are recorded onto the video tape. When video signals are recorded and played back in their original analog format, the signal quality may deteriorate due to tape/head misalignment, variation in tape tension, and other causes. By contrast, there is very little signal deterioration when the recorded signals are digital signals that are converted to analog signals for playback.

Drum

See "Head drum".

External synchronization

External synchronization is when the target device's operations and signals are synchronized with the operations and signals of a reference device. When a recorder (recording VCR) and player (source VCR) are used in editing, the two devices' operation timing signals and time code signals are often synchronized.

Gen-lock

Abbreviation of "generator lock". It refers to the synchronization of a VCR to a reference sync signal.

Head drum

A metal cylinder to which a video head is attached. This drum is rotated at high speeds in synchronization with the sync signal during recording and playback.

PCM audio

PCM stands for "pulse code modulation." PCM audio means audio signals that have been processed by pulse code modulation. Each analog audio signal is converted into pulses that are generated in rapid succession, and each pulse is recorded as a digital signal having a value of 0 or 1.

S video connectors

Input/output connectors for separate Y (luminance) and C (chroma) signals. This method eliminates interference between Y and C signals that can occur in conventional composite video signals to obtain a higher-resolution picture.

Search

The search function enables recorded images or time codes to be viewed while the tape is played back at various forward or reverse speeds, as a means of locating a particular scene in the taped program.

Setup

The difference between the reference black level and the blanking level of a composite signal.

Standby-off mode

One of the stop modes. In this mode, head drum rotation is stopped and the tape tension is slackened. It is not possible to switch instantaneously from this mode to recording or playback mode. This mode is not harmful to the tape or heads.

Standby-on mode

One of the stop modes. In this mode, the head drum continues rotating and the tape remains wound onto the drum. This mode enables instantaneous switching to recording or playback mode. To prevent damage to the tape or heads, the device automatically switches from standby-on mode to standby-off mode after a certain period of time.

Sync

This refers to the sync (synchronization) signal. The sync signal is used as a reference signal for duplicating the scanning patterns recorded via a camera when playing back the recording on a monitor. The sync signal actually includes two signals: a horizontal sync signal and a vertical sync signal.

Time code

The time code is a tape position information signal that includes time and frame data that are recorded onto the tape when shooting so as to facilitate searching of editing point settings and recorded scenes when viewing or editing.

Time data

This refers either to time data that is generated by a time code generator or time data that is played back from a tape and read by a time code reader.

User bits

These are also referred to as "users' bits". The user bits are a 32-bit segment of the time code recording area. The user can select what to record in this segment and how to use the recorded data. For example, it can be used to record date information in addition to the time code data or ID numbers for tape reels or programs.

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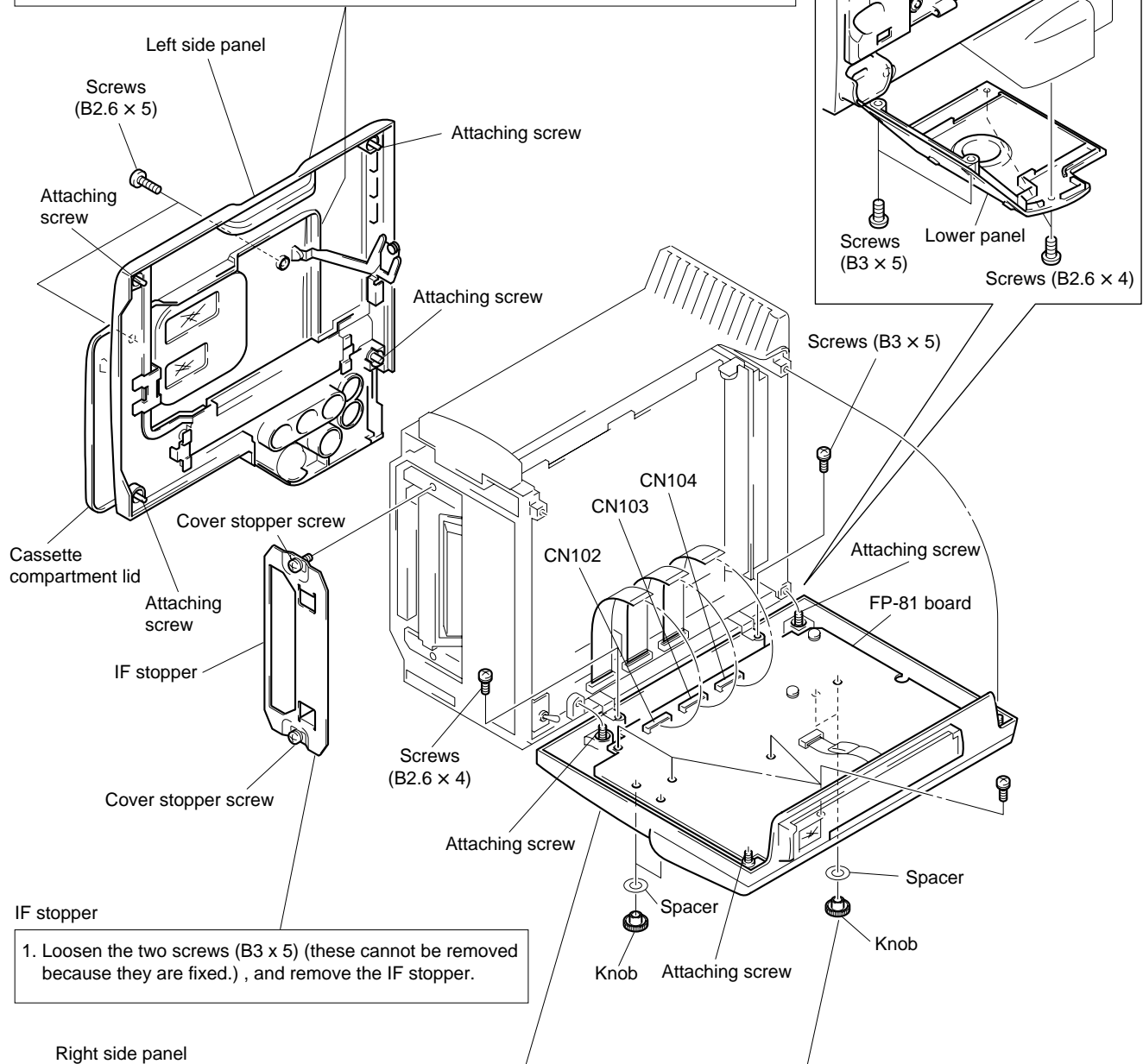
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Service Overview

2-1. Removal and Attachment of Cabinet

Left sidepanel, cassette compartment lid

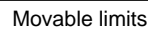
1. Remove two screws (B2.6 × 5) of the cassette compartment lid.
2. Loosen the four attaching screws (these cannot be removed because they are fixed), and remove the left side panel and the cassette compartment lid.



1. Loosen the two screws (B3 x 5) (these cannot be removed because they are fixed.) , and remove the IF stopper.

Right side panel

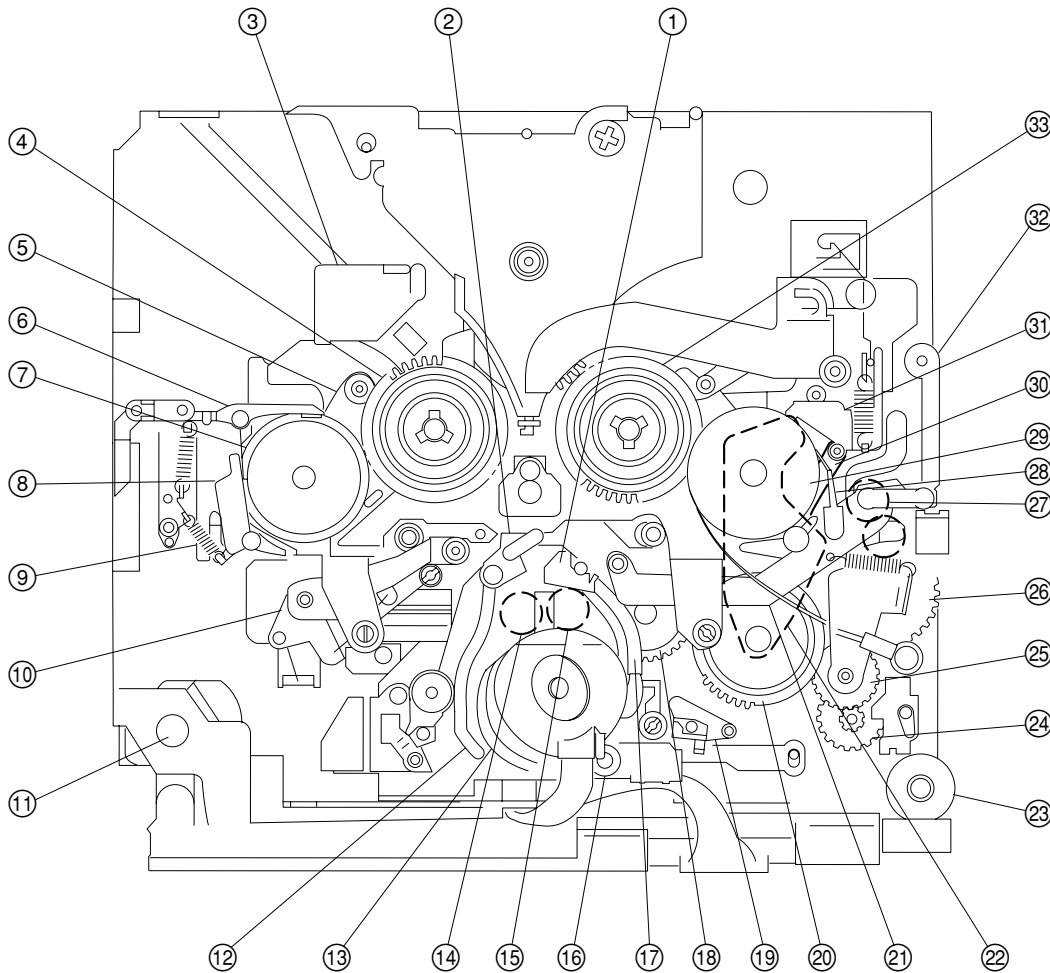
1. Remove the four knobs of the right side panel.
2. Loosen the four attaching screws and open the right side panel (these cannot be removed because they are fixed).
3. Disconnect the tree flat cables (CN102, CN103, CN104) of the FP-81 board.
4. Remove the two strap screws (B2.6 × 4), and remove the left side panel (with the FP-81 board attached).



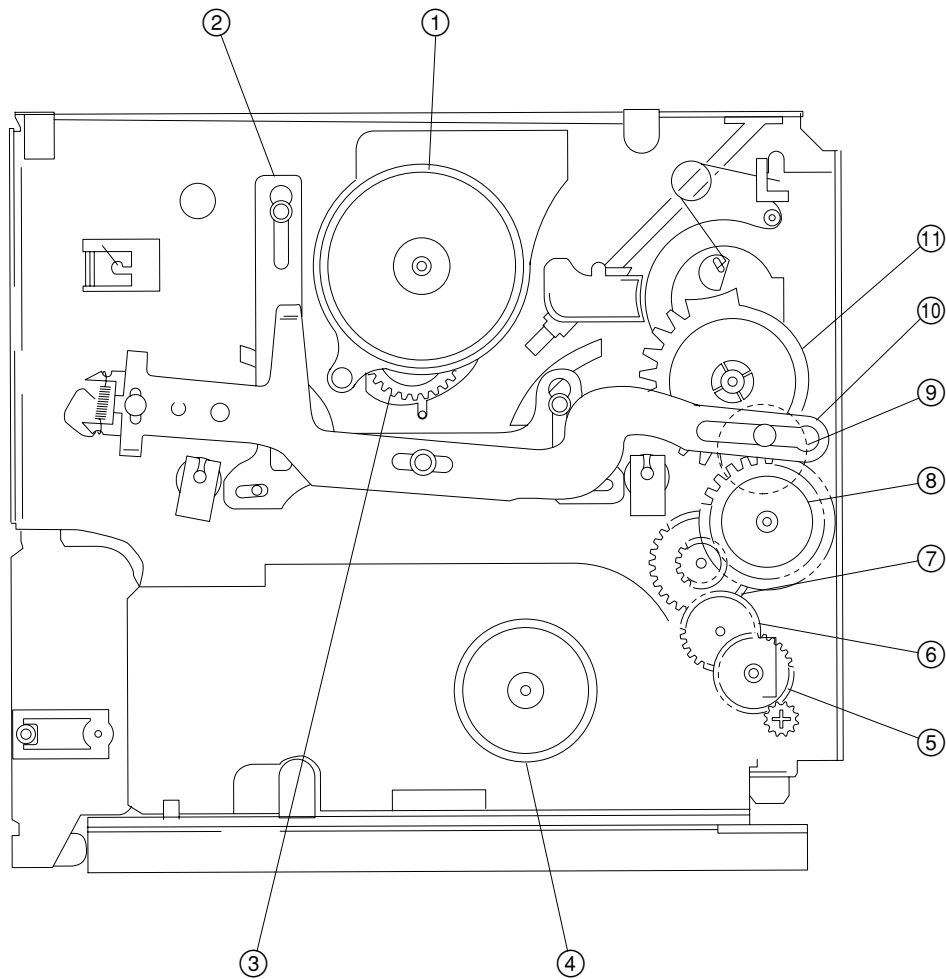
Precaution on attaching knob
Adjust the mark on the unit to the mark
on the knob.

2-2. Location of Major Parts

2-2-1. Location of Major Mechanical Parts



- | | | | |
|----------------------|------------------|----------------------|----------------------|
| ① Coaster (S) | ⑪ Shift motor | ⑳ TR arm | ⑳ Soft brake arm (S) |
| ② Coaster (T) | ⑫ Rail (T) | ㉑ Reel plate (S) | ㉒ Sensor bracket |
| ③ MIC | ⑬ Drum | ㉒ LD motor | ㉓ Reel table (S) |
| ④ Reel table (T) | ⑭ GL (T) | ㉓ No. 1 gear | |
| ⑤ Reel plate (T) | ⑮ GL (S) | ㉔ HC gear | |
| ⑥ TL soft brake | ⑯ C roller | ㉕ Mode gear | |
| ⑦ Sub reel gear (T) | ⑰ Rail (S) | ㉖ Release cam gear | |
| ⑧ Soft brake arm (T) | ⑱ Threading gear | ㉗ TR band | |
| ⑨ Hard brake arm (T) | ㉑ TC assembly | ㉘ Sub reel gear (S) | |
| ⑩ Pinch arm | ㉒ Cam gear | ㉙ Hard brake arm (S) | |

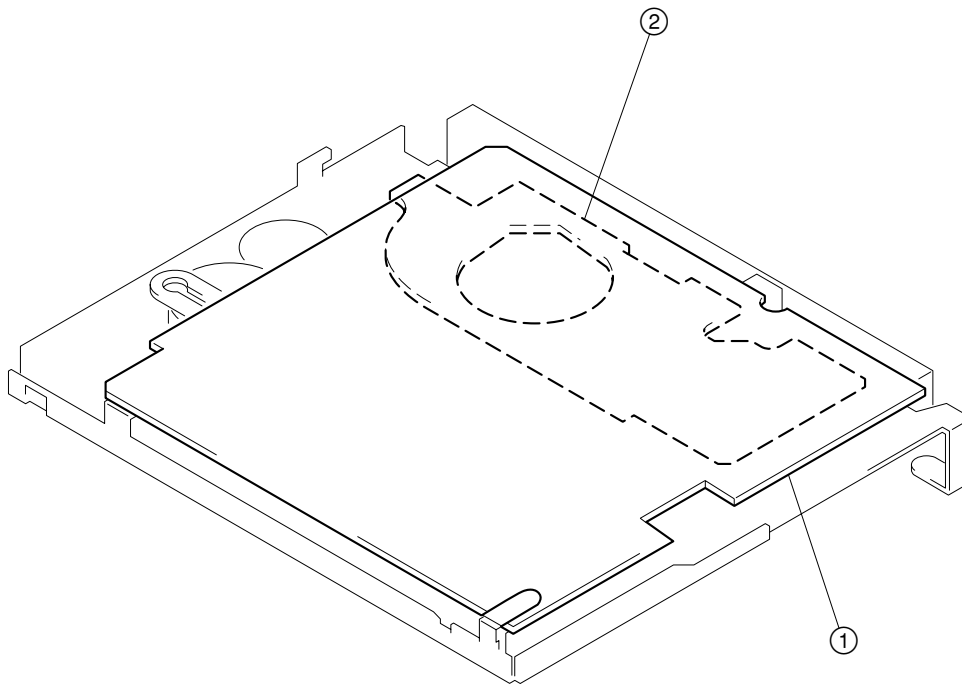


- | | |
|-------------------------------|---------------------|
| ① Reel motor | ⑥ Gear B |
| ② Reel plate compression link | ⑦ Gear C |
| ③ Idler gear | ⑧ Reel drive gear A |
| ④ Capstan motor | ⑨ Gear E |
| ⑤ Gear A | ⑩ Reel drive arm |
| | ⑪ Reel drive gear B |

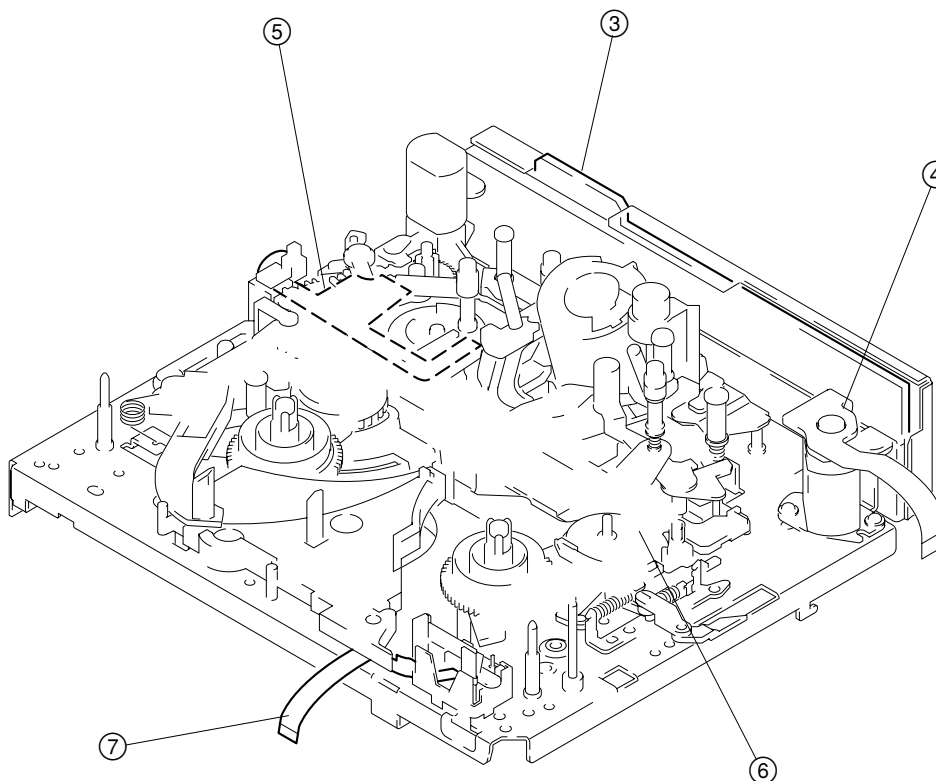


2-2-2. Location of the Printed Circuit Boards

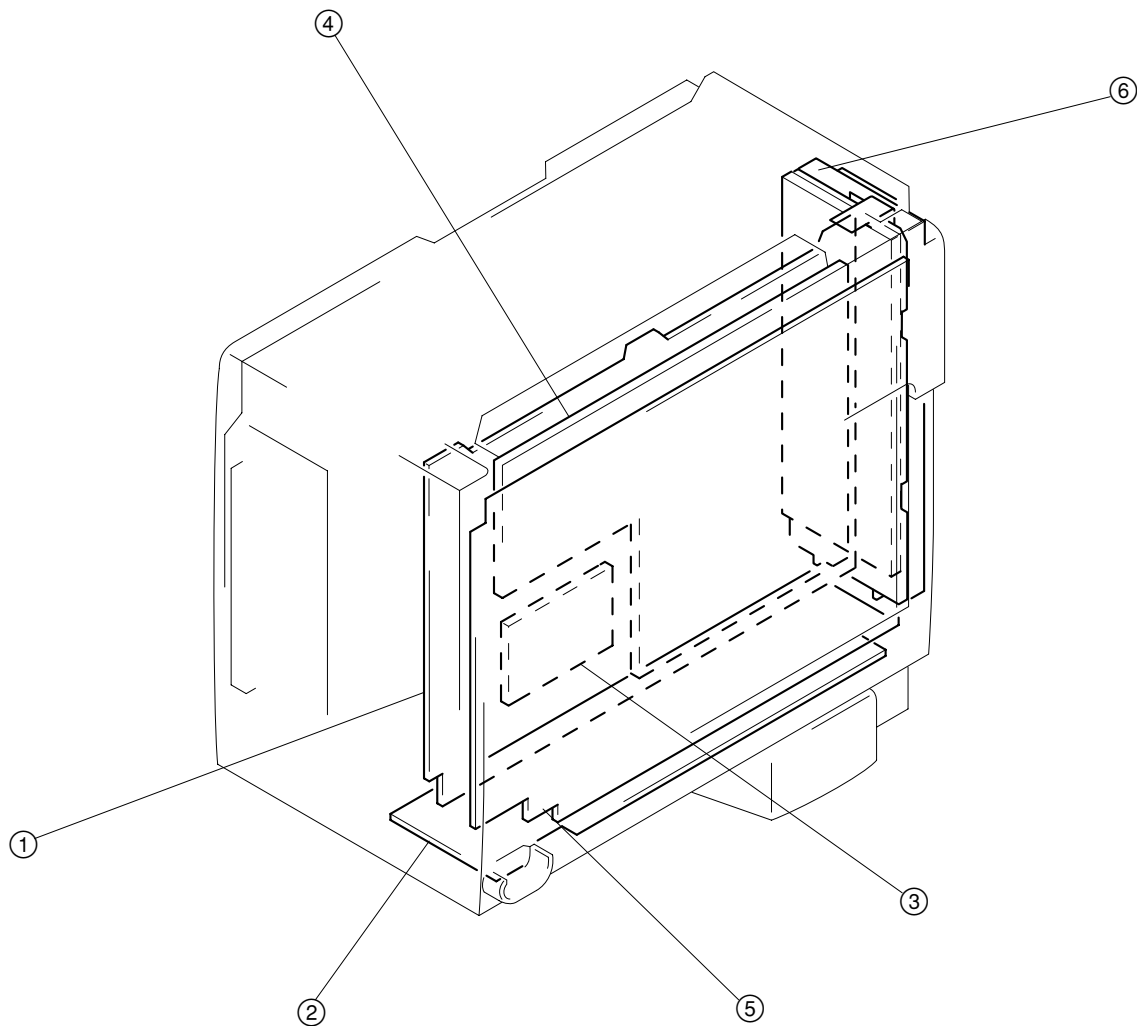
Mechanical Deck



- ① SV-164/213 board
- ② HN-227 board
- ③ RP-91 board
- ④ MT-114 board
- ⑤ SE-295 board
- ⑥ SE-297 board
- ⑦ SE-298 board

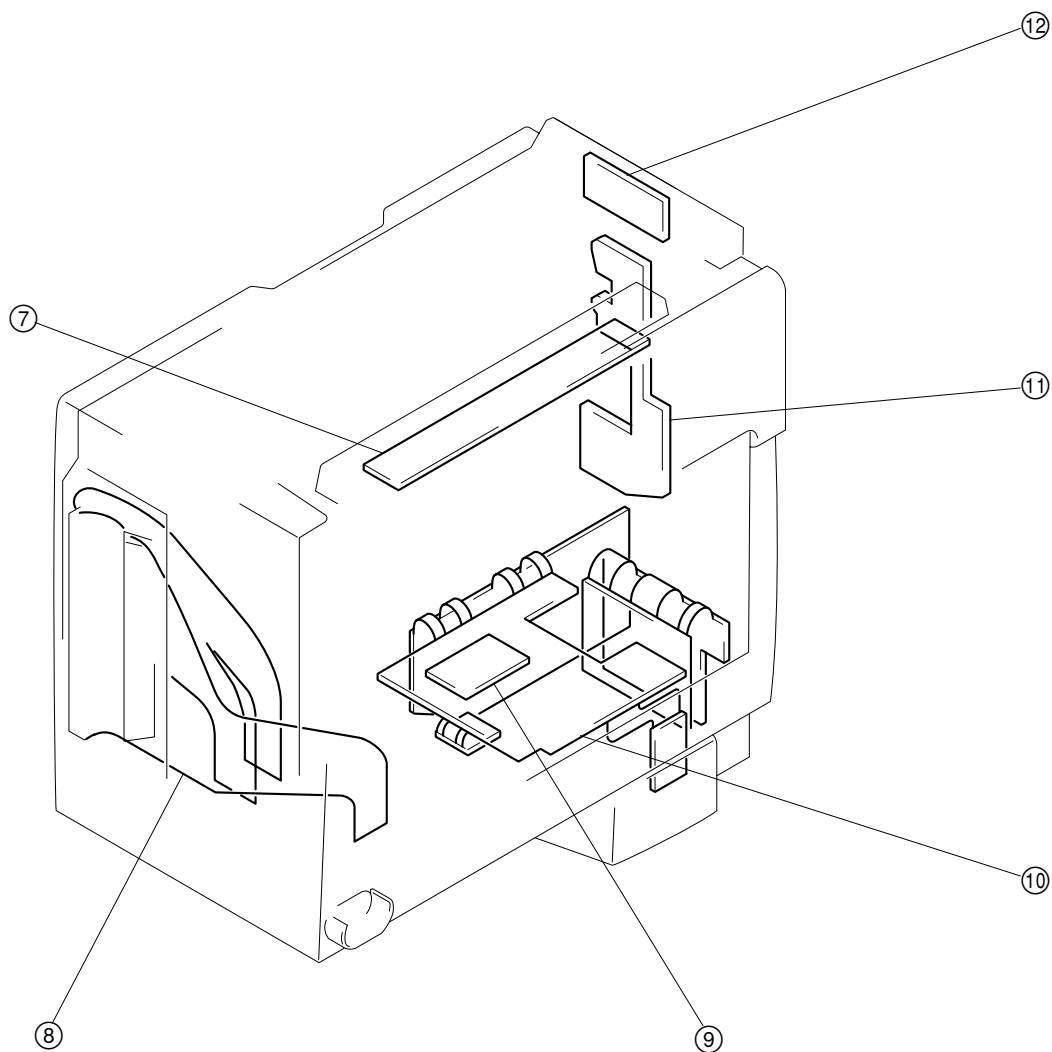


Main Chassis (1)



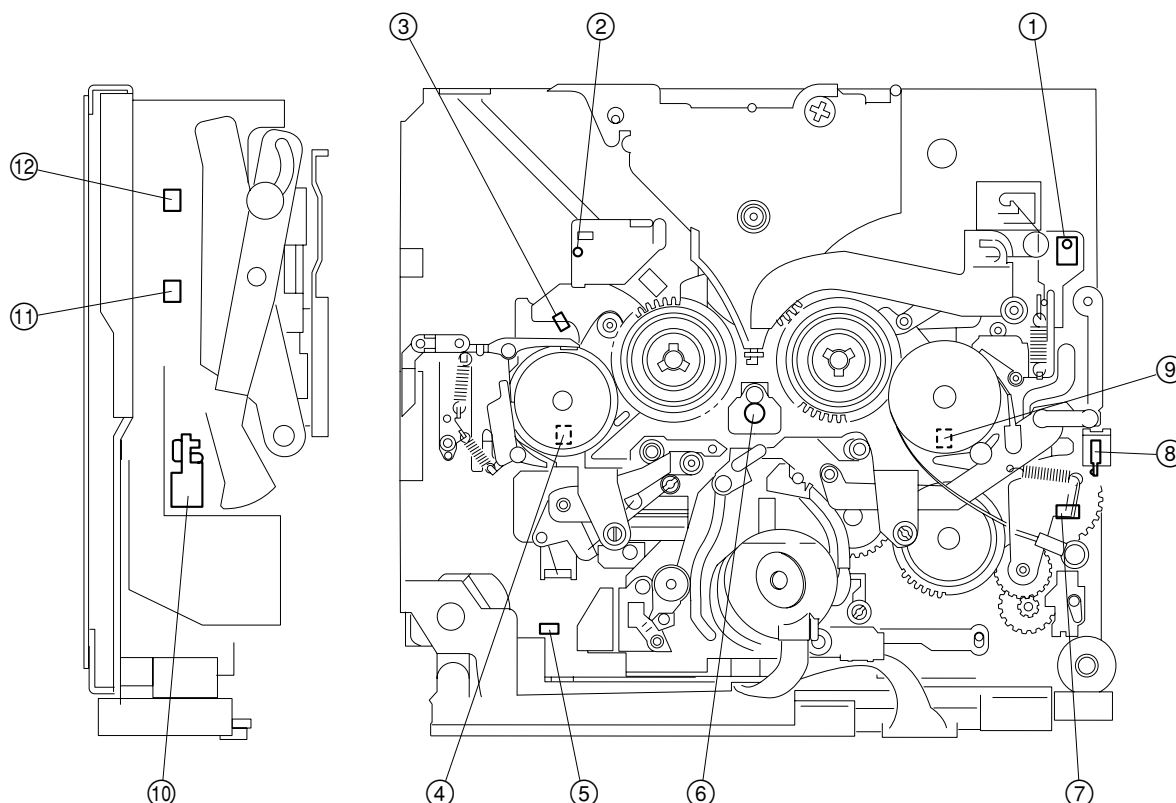
- ① VA-172/172P/205B/205C board
- ② MB-661 board
- ③ IV-50 board
- ④ IPM-66 board
- ⑤ FP-81 board
- ⑥ DC-DC converter

Main Chassis (2)



- ⑦ KY-370 board
- ⑧ IF-553 board
- ⑨ PS-409 board
- ⑪ CP-283 board
- ⑫ CC-68 board
- ⑬ IF-631 board

2-2-3. Location of Sensors

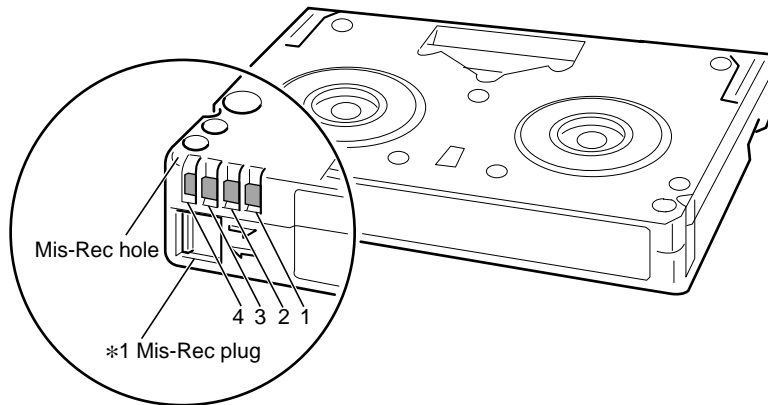


Function of the Sensors

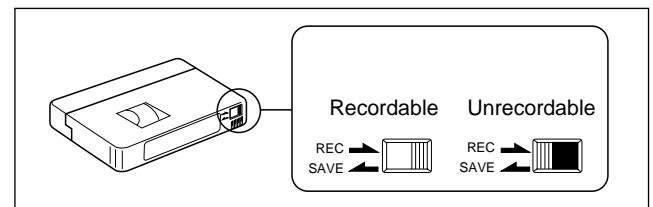
- | | |
|---|---|
| <p>① Cassette compartment lock switch
Detects that the cassette compartment has locked.
Starts threading when the cassette compartment locks from the open state.
During EJECT, EJECT operations end when the cassette compartment opens from the locked state.</p> <p>② False REC detection sensor
Detects the setting position of mis-record-prevention switch of the cassette tape.</p> <p>③ Reel position sensor
Detects the reel position, such as standard cassette position or mini-cassette position.</p> <p>④ Take-up reel FG sensor
Detects the rotation speed of the take-up reel.</p> <p>⑤ Dew sensor
Detects dew condensation in the unit.</p> | <p>⑥ Tape top end sensor (LED)</p> <p>⑦ Mechanical function cam sensor (Cam position sensor)
Detects the movement of the cam whether it is moved to the specified position.</p> <p>⑧ Tape end sensor (sensor)</p> <p>⑨ Supply reel FG sensor
Detects the rotation speed of the supply reel.</p> <p>⑩ Tape top sensor (sensor)</p> <p>⑪ Cassette-In switch
Detects whether a cassette tape is inserted in the cassette compartment.</p> <p>⑫ Cassette identification switch
Detects the size of a cassette tape in the cassette compartment.</p> |
|---|---|

2-3. Functions of Cassette

Standard Cassette

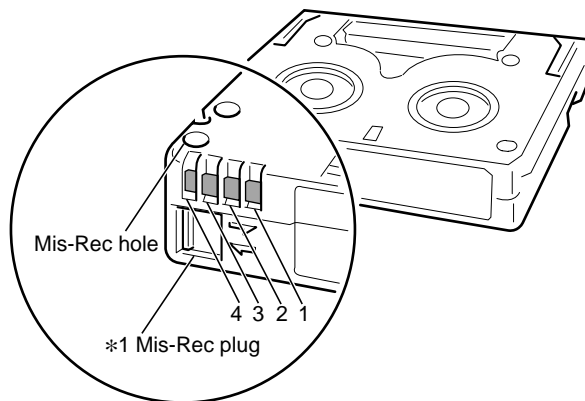


*1 Mis-Rec plug



- Mis-Rec switch is operated by opening or closing of this plug.

Mini Cassette



Pin No.	Function	
	Built-in memory	No Built-in memory
1	+DC	Tape thickness detection
2	DATA	Tape type detection (Ex.: ME/MP)
3	CLOCK	Tape usage detection (Ex.: Consumer/Professional)
4	GND	—

2-4. Circuit Structure

This unit is composed of the following boards.

System	Board name	Circuit structure
VIDEO	IPM-66	INDEX PICTURE
	IV-50	ANALOG VIDEO (INPUT)
VIDEO/	RP-91	REC/PB RF AMP CHCD (CHANNEL CODING)
	VA-172/172P/205B/205C	VIDEO/AUDIO
AUDIO	FP-81	AUDIO SELECT/LIMITER
SERVO	CC-68	CASSETTE COMPARTMENT SWITCH TAPE TOP SENSOR
	HN-227	SERVO-MECH. DECK INTERFACE
	MT-114	REEL SHIFT MOTOR/SWITCH
	SE-295	FUNCTION CAM SENSOR TAPE END SENSOR
	SE-297	REEL FG SENSOR REEL SHIFT SENSOR CASSETTE COMPARTMENT LOCK SWITCH
	SE-298	MIC REC INHIBIT SWITCH
	SV-164/213	SERVO
SYSCON	KY-370	FUNCTION KEY
SYSCON/ OTHER	FP-81	SYSTEM CONTROL TC GENERATOR TC SWITCH
OTHERS	CP-283	AUDIO IN/OUT CONNECTOR AUDIO MIC AMP VIDEO OUT CONNECTOR TC IN/OUT CONNECTOR
	IF-553	76PIN/50PIN CONNECTOR
	IF-631	SERVICE JIG CONNECTOR
	MB-661	MOTHER BOARD
	PS-409	CIRCUIT PROTECTOR

2-5. Notes on Tightening Screws

1. Attaching Screw to the Chassis

This unit has a small and light design, and uses numerous M1.4 × 2.5 (1.4 mm diameter), M2 × 5, and M2 × 6 (2 mm diameter) screws.

When tightening the above screws, be very careful of the tightening torque. In order to prevent the chassis's screw-hole from damage against the excessive tightening torque, be sure to use the following torque screwdriver and torque screwdriver bits.

<u>Tools</u>	<u>Sony Part No.</u>
Torque screwdriver	J-6325-400-A
Torque screwdriver bit (For M1.4)	J-6325-110-A
Torque screwdriver bit (For M2)	J-6325-380-A

<u>Screws</u>	<u>Tightening torque</u>
For M1.4 screws	$0.09 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.9 \pm 0.1 \text{ kgf}\cdot\text{cm}$)
For M2 screws	$0.19 \pm 0.03 \text{ N}\cdot\text{m}$ ($1.9 \pm 0.3 \text{ kgf}\cdot\text{cm}$)

The above torque screwdrivers can be used for both M1.4 and M2 screws.

2. Screwlocking of Tape Guide's Upper Flange

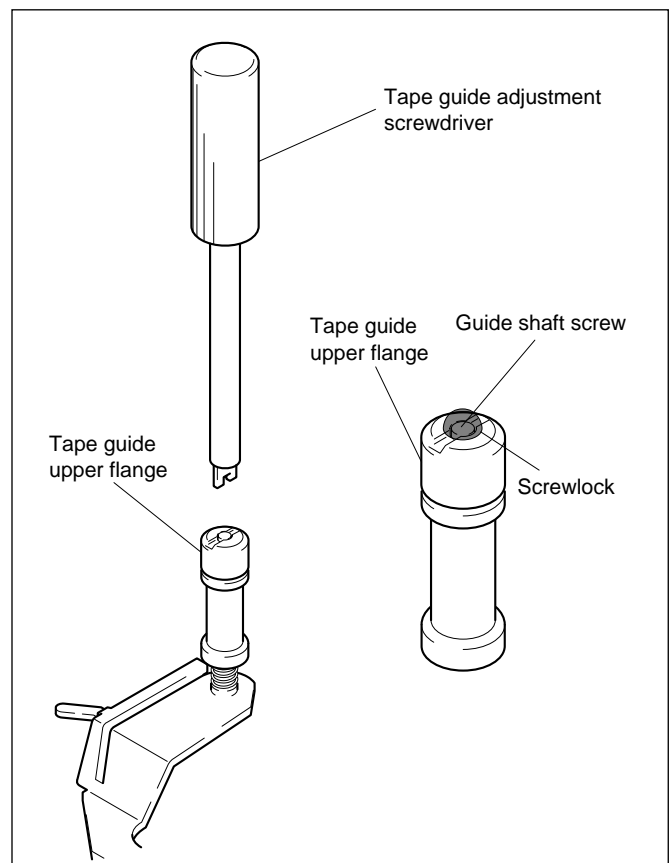
When performing the tape guide height adjustment during tape path adjustment, use the following tape guide adjustment screwdriver.

After adjusting the tape guide height, apply screwlocking compound to the upper flange of tape guide and tapped Section of guide shaft screw.

<u>Tools</u>	<u>Sony Part No.</u>
Tape guide adjustment screwdriver	J-6082-362-A
Screwlocking compound (Three-bond 1401B)	<u>7-432-114-11</u>

Point to notice when applying the screwlocking compound:

Do not apply screwlocking compound to the guides along the tape running surface.



2-6. Connecting the VTR and Camera

2-6-1. Changing the Camera Connection Connector

The DSR-1 can be used for the digital video camera (DXC-D30/D30P) and DXC-637/537/537A/327A/327B series camera by changing the camera connection connector.

Corresponding connectors

DXC-D30/D30P :

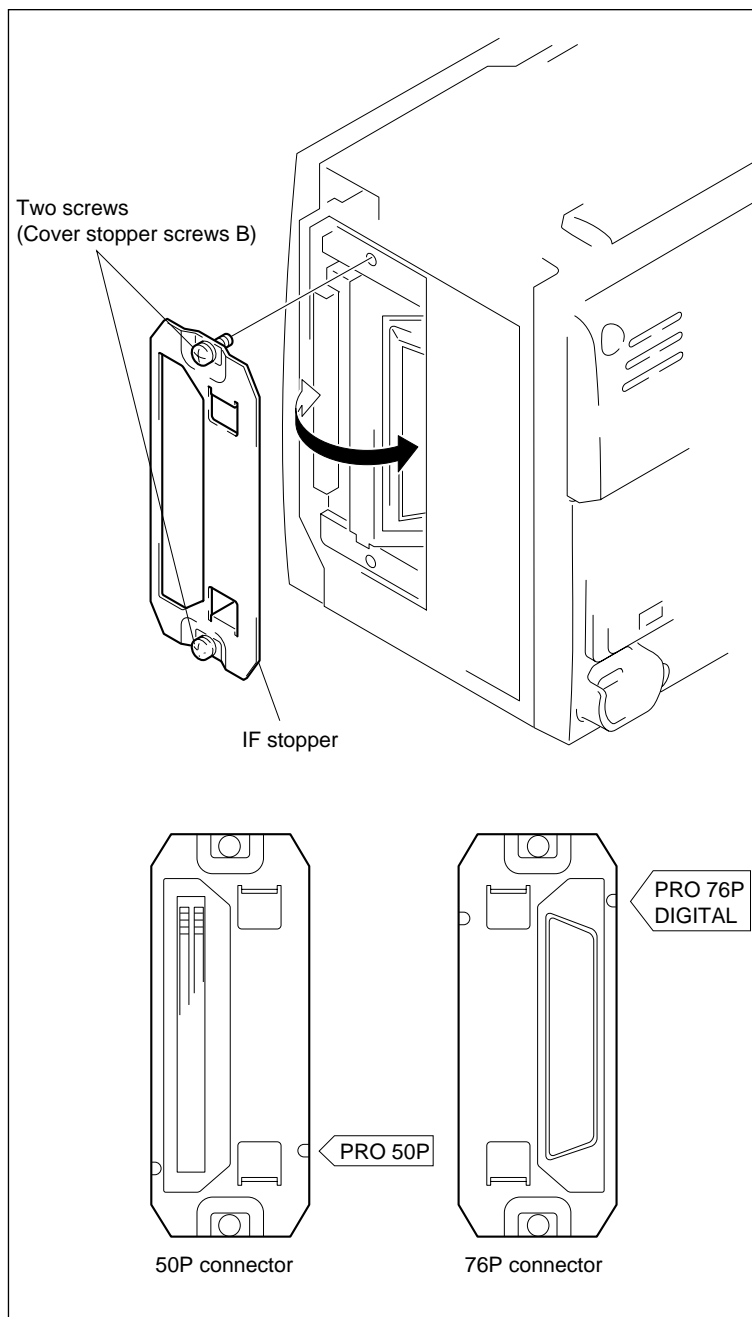
PRO 76 DIGITAL type connector

DXC-637/537/537A/327A/327B series :

PRO 50 type connector

Changing procedure

1. Loosen the two screws and remove the IF stopper.
2. (1) When changing from 50P connector to 76P connector:
Push in the 50P connector and move the 76P connector to the front.
(2) When changing from the 76P to 50P connector:
Push in the 76P connector and move the 50P connector to the front.
3. Turn the IF stopper upside down and attach to the main unit.



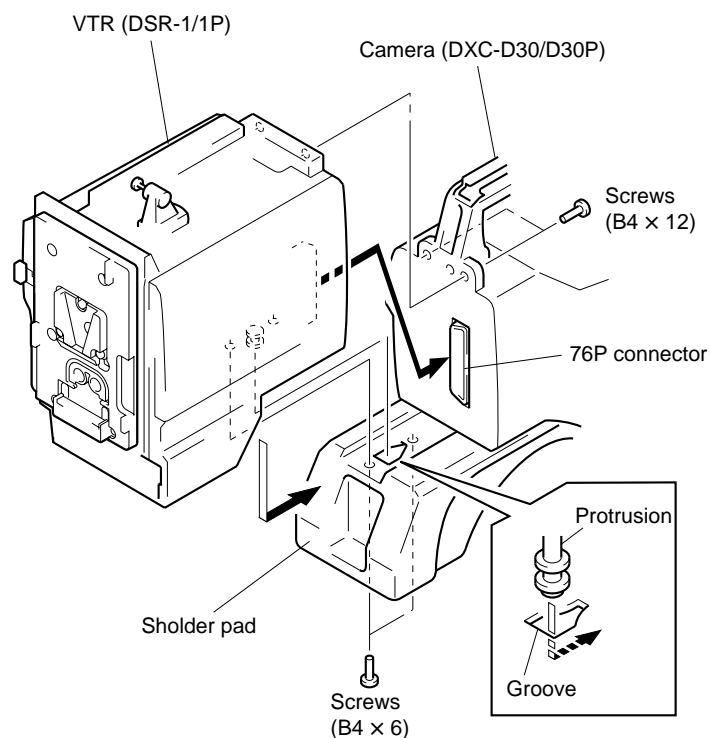
2-6-2. Connecting the Camera

1. According to the camera to be connected, change the connector.
(Refer to Section 2-6-1.)
2. Adjust the VTR protrusion to the groove of the camera shoulder pad, slide the VTR in the arrow direction, and attach the VTR to the 76P or 50P connector.
3. Attach the two screws of the connected part (provided with camera) and two screws of the shoulder pad (provided with camera).
4. When removing, remove in the reverse order of 2 and 3.

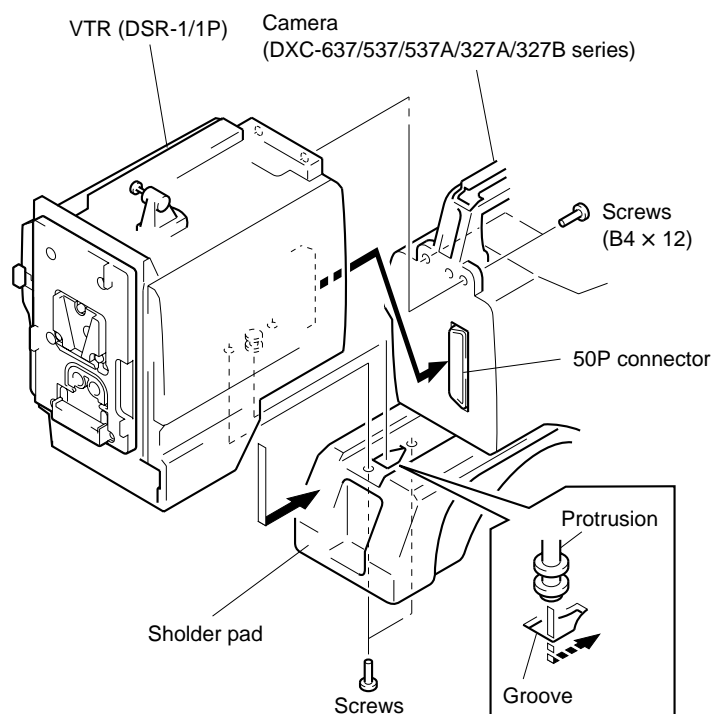
Note

When connecting cameras not provided with the screws, use the screws (B4 × 12 and B4 × 6) provided with the VTR.

DSR-1 : 76P connector



DXC-637/537/537A/327A/327B series : 50P connector

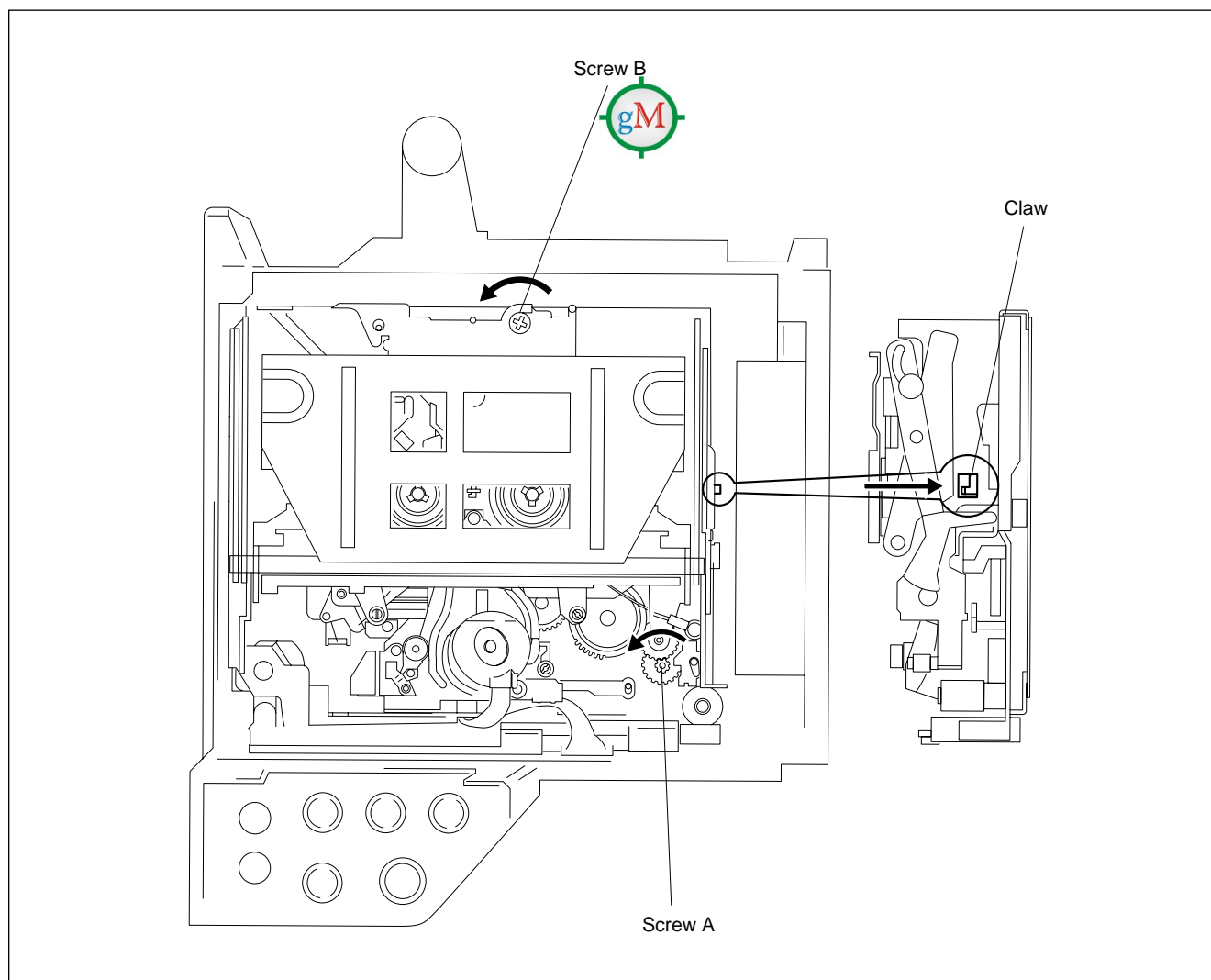


2-7. Removing the Cassette Tape when Tape Slack Occurs

1. Remove the left side panel. (Refer to Section 2-1.)
2. While holding the cassette compartment so that it does not rise, rotate screw A (red) in the counterclockwise direction with a Phillips screwdriver so that the tape slacks slightly.
3. Rotate screw B (red) in the counterclockwise direction with a Phillips screwdriver, and wind the tape slacked in step 2.
4. Repeat steps 2 and 3 until the tape has been completely wound.
5. After winding the tape, remove your hand from the cassette compartment, and rotate screw A further in the counterclockwise direction so that the cassette compartment rises, then remove the tape. If the cassette compartment does not rise, press the claws on the side of the cassette compartment with a thin screwdriver.

Precautions on winding tape :

1. Do not rotate screws A and B strongly.
2. Do not apply strong tension to the tape.

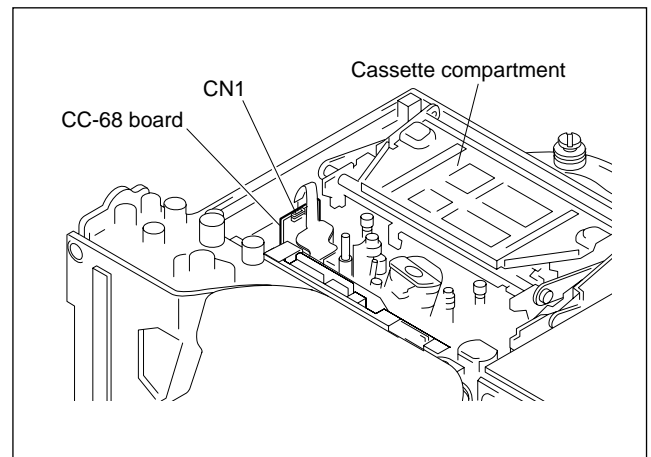


2-8. Operating the Unit without Loading a Cassette Tape

1. Turn off the power switch.
2. Remove the left panel and cassette compartment lid.
(Refer to Section 2-1.)
3. Disconnect connector CN1 from the CC-68 board.
4. Set the SLACK DETECTION ON/OFF switch (S500-4/SV-164/213 board) to off.
5. Turn on the power switch.
6. Press the desired mode button.

Note

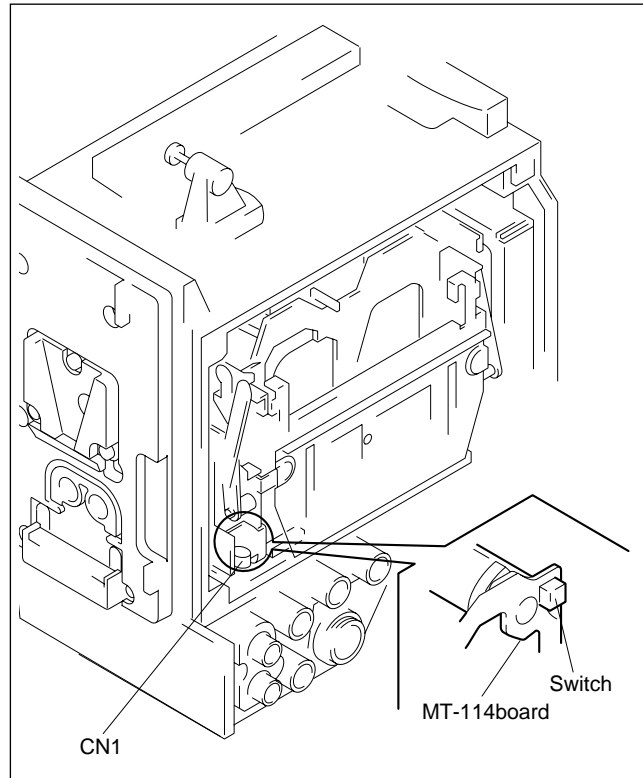
Set the SLACK DETECTION ON/OFF switch (S500-4 / SV-164/213 board) to on, after operation.



2-9. Shifting the Reel

2-9-1. When the power can be turned ON

1. Turn off the power switch.
2. Remove the left panel and cassette compartment lid.
(Refer to Section 2-1.)
3. Disconnect the connector CN1 from the CC-68 board.
4. Turn on the power switch.
5. Press the EJECT button to set the unit in EJECT state.
6. Press the switch on the MT-114 board. The reel is shifted alternately between the standard cassette position and mini cassette position every time you press the switch.

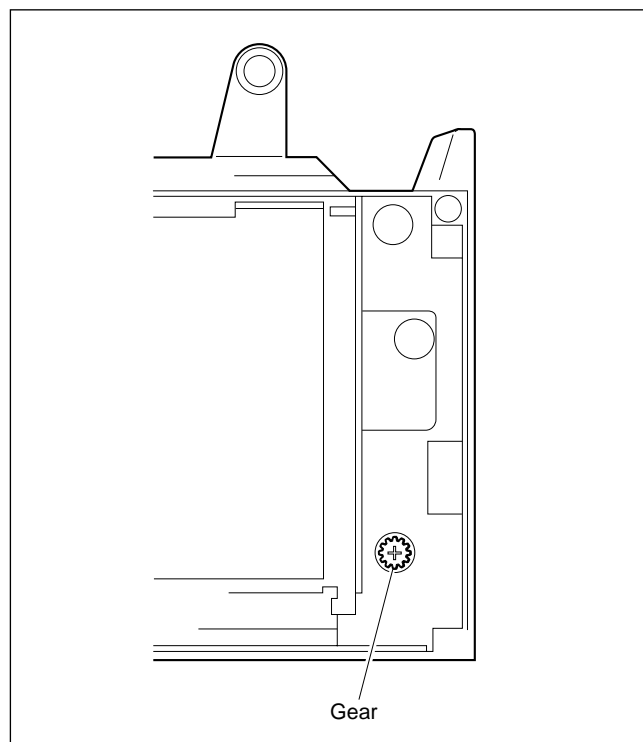


2-9-2. When the power cannot be turned ON

1. Open the right panel. (Refer to Section 2-1.)
2. Disconnect the DC-DC converter.
(Refer to Section 2-12.)
3. Turn the gear as shown in the figure.
Clockwise direction: Standard cassette position
Counterclockwise direction: Mini cassette position

Notes

- Do not turn the gear with excessive force.
- Do not turn this gear frequently.



2-10. Using the Camera Tool (EW-783)

To set only the DSR-1/DSR-1P into the recording state without connecting a camera, it is necessary to connect the camera tool (EW-783). The camera tool has terminals such as inputs for various component video signals, outputs for playback video signals, inputs for microphone signals, and outputs for earphones, etc. It is also equipped with the VTR S/S switch, REC REVIEW switch, SAVE → STBY switch, and various LED display functions. When performing electrical adjustments of the video system, use it to input various component video signals. In the repairs of the DSR-1/DSR-1P, connect it instead of the camera as shown in the Fig. 2, and use it to perform adjustments and VTR operation checks.

2-10-1. Functions of Switches

1. VTR S/S switch
VTR recording start/stop switch.
When pressed once, recording starts. When pressed another time, it stops.
2. REC REVIEW switch
When pressed, a part of the recording image is played back. During recording standby, whether the image has been recorded properly can be checked on the PB VIDEO OUT screen.
3. SAVE → STBY switch
 - SAVE : VTR sets into the power saving state.
 - STBY : VTR sets into the recording standby state.
 When the VTR S/S switch is pressed, recording starts immediately.

2-10-2. Connecting and Adjusting with camera Tool

To use the camera tool for electrical adjustments, etc., connect as shown in Fig. 2, and be sure to perform the SYNC DELAY adjustment.

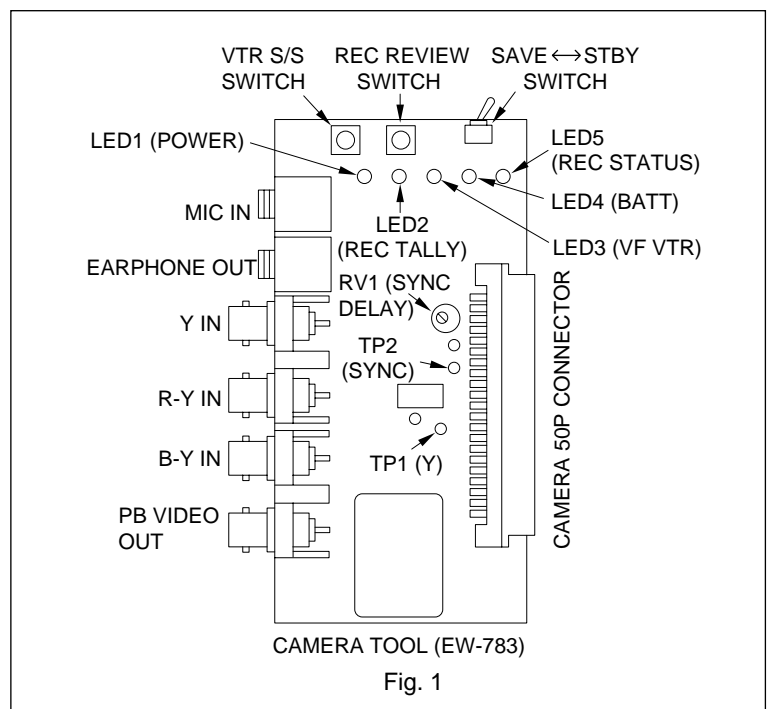


Fig. 1

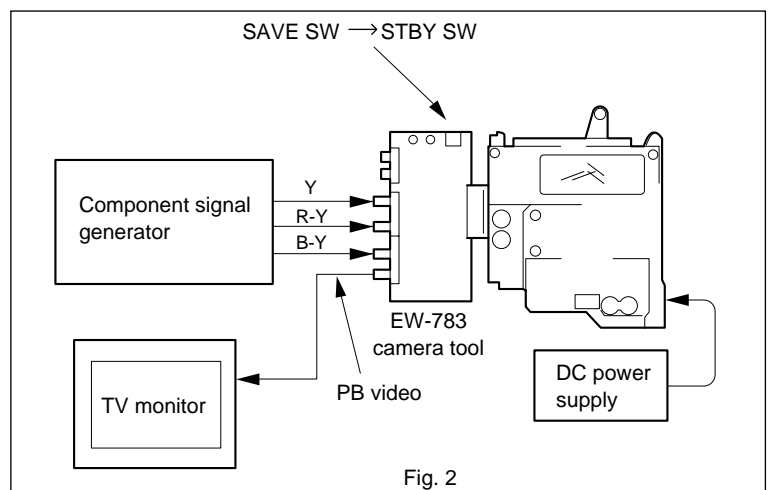
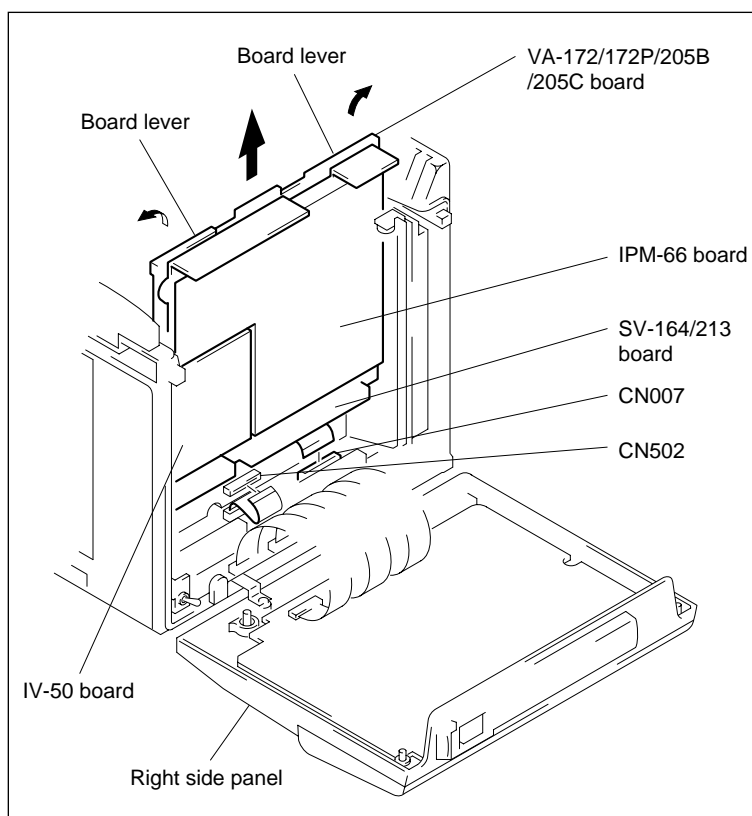


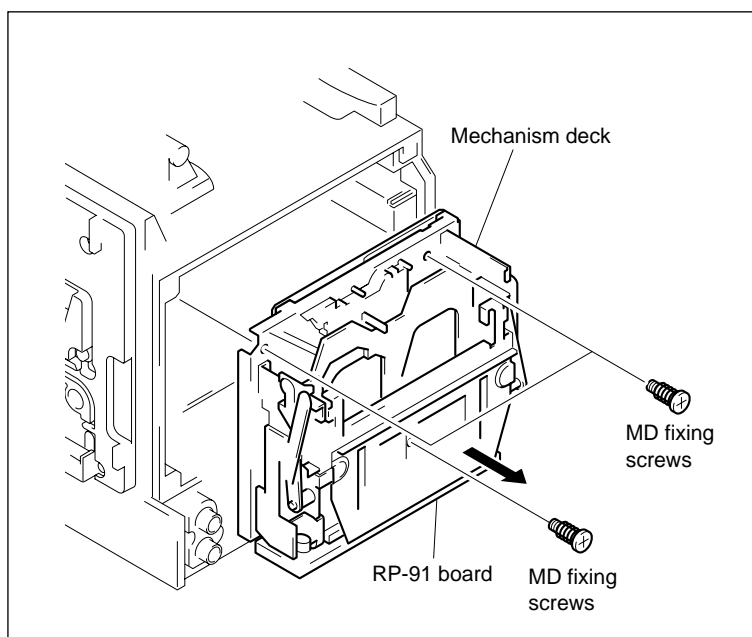
Fig. 2

2-11. Removing the Mechanical Deck

1. Loosen the four attaching screws, and open the right side panel. (Refer to Section 2-1.)
2. Open the board lever of the VA-172/172P/205B/205C board in the arrow direction. Remove the VA-172/172P/205B/205C board. (Leave the IV-50 board and IPM-66 board attached.)
3. Disconnect the flat cable (CN502) of the SV-164/213 board.
4. Disconnect the flexible card wire (CN007) of the MB-661 board.

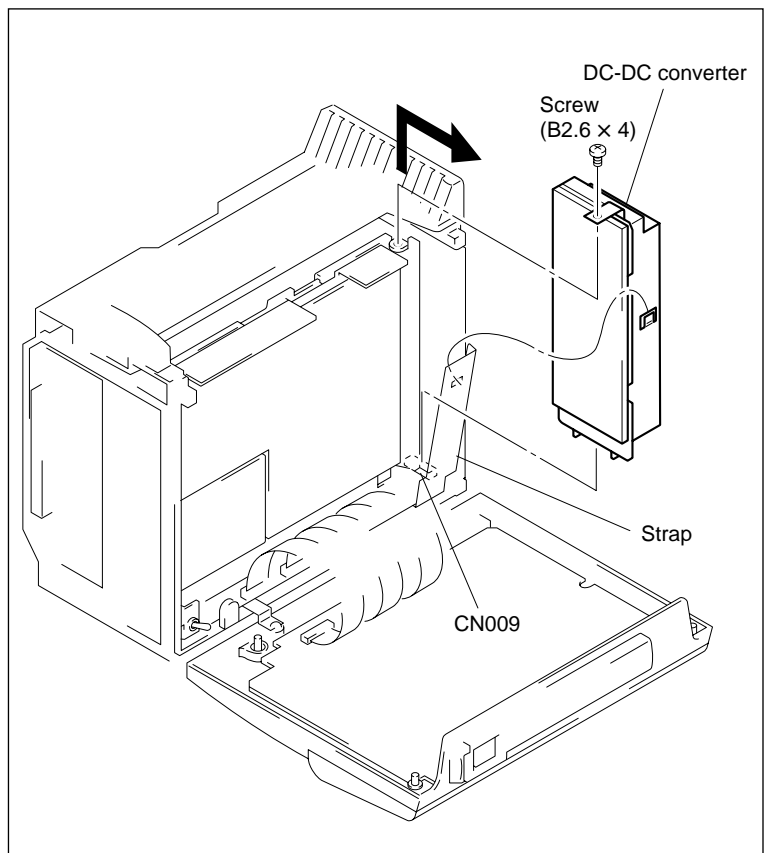


5. Remove the left side panel and the cassette compartment lid. (Refer to Section 2-1.)
6. Remove the three screws (MD fixing screws), and remove the mechanism deck in the arrow direction.



2-12. Removing the DC-DC Converter

1. Loosen the four attaching screws, and open the right side panel.
2. Remove the strap.
3. Remove the screw (B2.6 × 4).
4. Pull out the connector (CN009) of the MB-661 board from the DC-DC converter in the arrow direction.



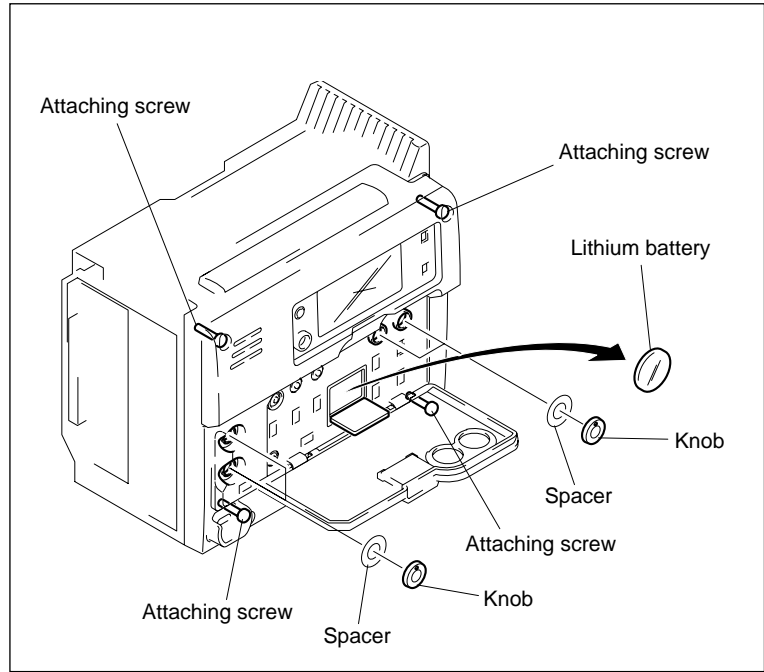
2-13. Removing and Attaching Boards

2-13-1. FP-81 Board

Precautions on removal of FP-81 board :

To preserve data, power will be supplied to the unit even if the power SWITCH is OFF. As data is also preserved in the FP-81 board by the lithium battery, performing repairs with power supplied to the unit will cause damage to the ICs in the board. Before removing the FP-81 board, remove the lithium battery inside the TC panel first.

1. Remove the lithium battery inside the TC panel.
2. Remove the four knobs on the right side panel. (Refer to Section 2-1.)
3. Loosen the four attaching screws and open the right side panel.

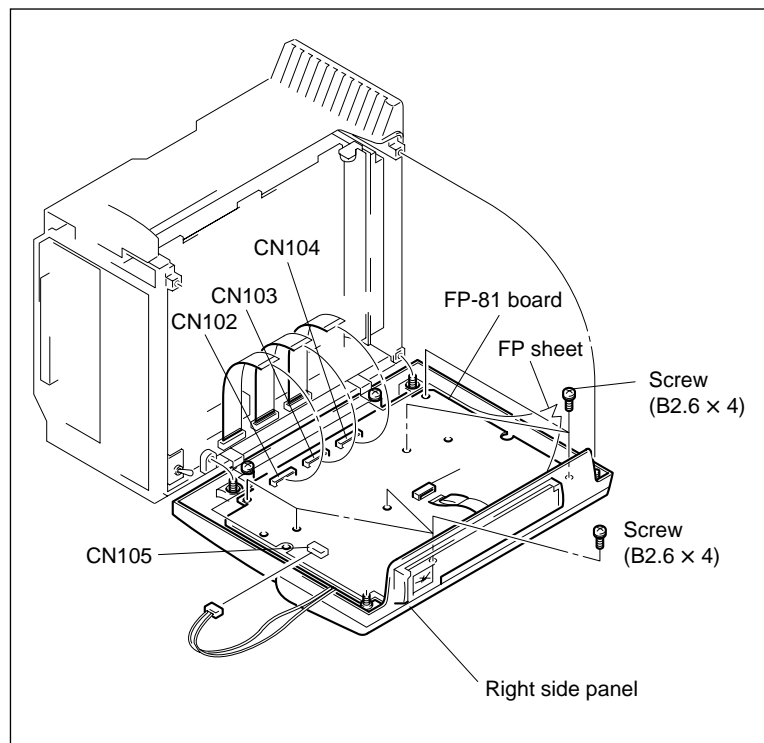


4. Disconnect the three flat cables (CN102, CN103, CN104) and the two connectors (CN101, CN105) of the FP-81 board.
5. Turn up the FP sheet, remove the seven screws (B2.6 × 4) of the FP-81 board and remove the board.

Precautions on after replacing the FP-81 board:

After replacing this board, perform battery detect voltage adjustment (Menu No. 501, 502 and 513) in accordance with 2-20-1. Changing the voltage (1). The EEPROM in the FP-81 board contains information required for maintenance. This information is also backed up in the EEPROM of the VA-172/172P/205B/205C board as ECHO BACK DATA. After replacing the FP-81 board, execute the Menu No. 752 KY EEPROM ECHO BACK DATA PRESET to write the data lost during replacement in the EEPROM.

(Refer to “Section 7. Electrical Alignment After Replacement Boards” for details of the KY EEPROM ECHO BACK DATA PRESET procedure.)

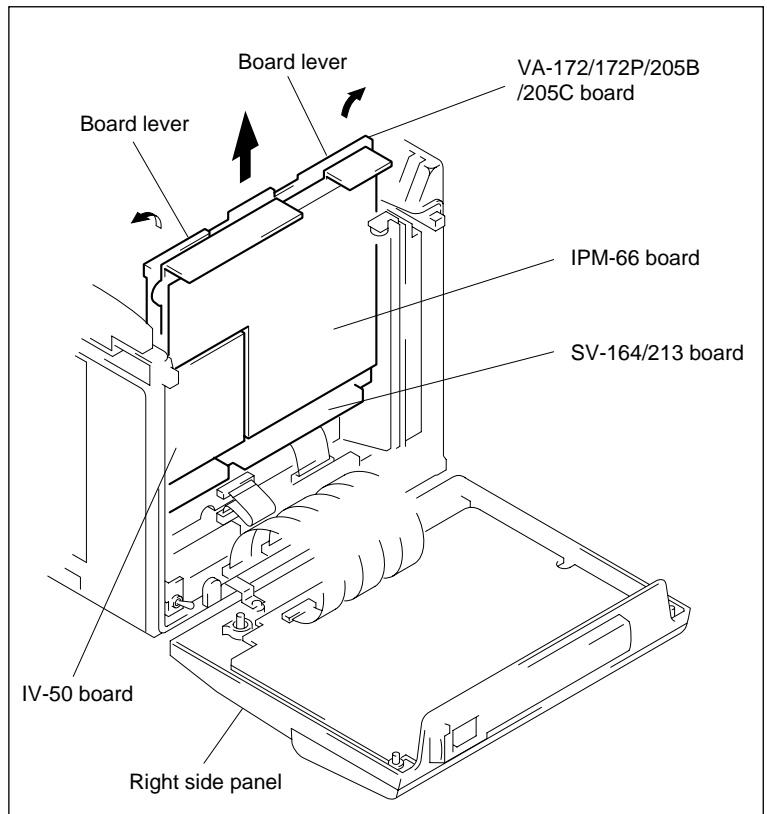


2-13-2. VA-172/172P/205B/205C Board, IV-50 Board, IPM-66 Board

Note

After replacing the VA-172/172P/205B/205C board and IV-50 board, be sure to perform “Electrical Alignment After Replacement Boards” in section 7.

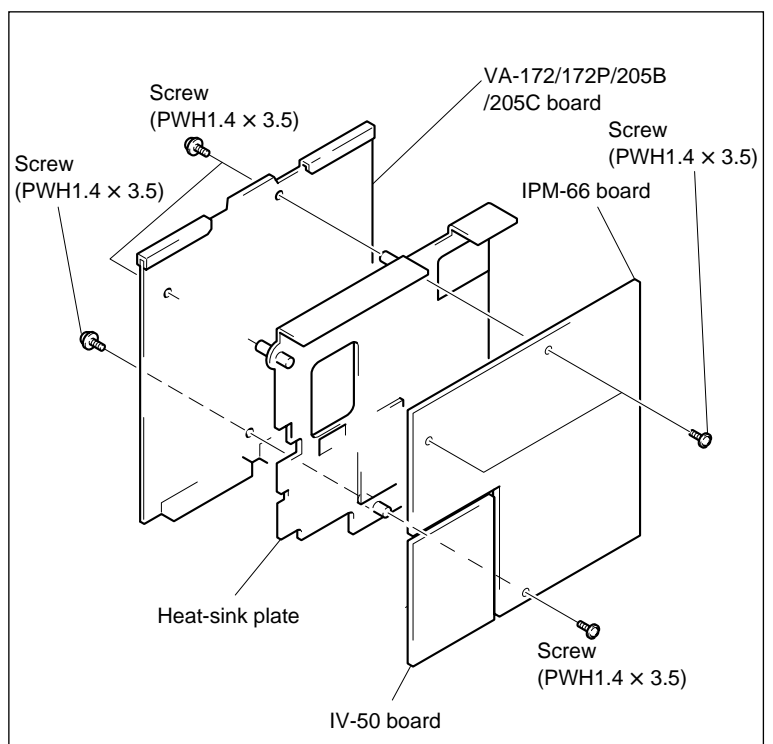
1. Loosen the four attaching screws, and open the right side panel. (Refer to Section 2-1.)
2. Open the board lever of the VA-172/172P/205B/205C board in the arrow direction, and pull out the board.



3. Disconnect the IV-50 board from the two connectors (CN406, CN407) of the VA-172/172P/205B/205C board to remove the board.
4. Remove the three screws (PWH1.4 × 3.5), disconnect the IPM-66 board from the connector (CN403) of the VA-172/172P/205B/205C board, and remove the board.
5. Remove the three screws (PWH1.4 × 3.5) on side B of the VA-172/172P/205B/205C board, and remove the heat-sink plate.

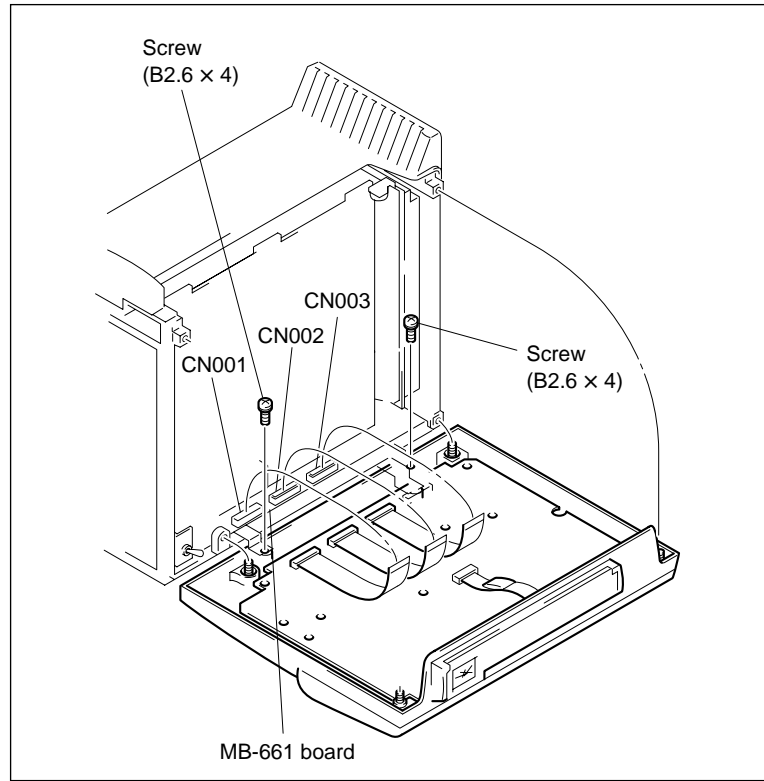
Precautions on attaching the VA-172/ 172P/205B/205C board :

Insert the board along the left and right grooves until it connects with the connectors of the mother board.



2-13-3. SV-164/213 Board

1. Loosen the four attaching screws and open the right side panel.
2. Disconnect the three flat cables (CN001, CN002, and CN003) of the MB-166 board.
3. Remove the two screws (B2.6 × 4), and remove the right side panel (with the FP-81 board attached).
4. Remove the VA-172/172P/205B/205C board (with the IV-50 and IPM-66 boards attached). (Refer to Section 2-13-2).



5. Disconnect the two flat cables (CN501, CN502) and flexible card wires (CN504, CN505) from the SV-164/213 board.
6. Remove the three screws (PWH1.4 × 2.5), disconnect the connector (CN500) of the SV-164/213 board to remove the board.

Precautions on Removal :

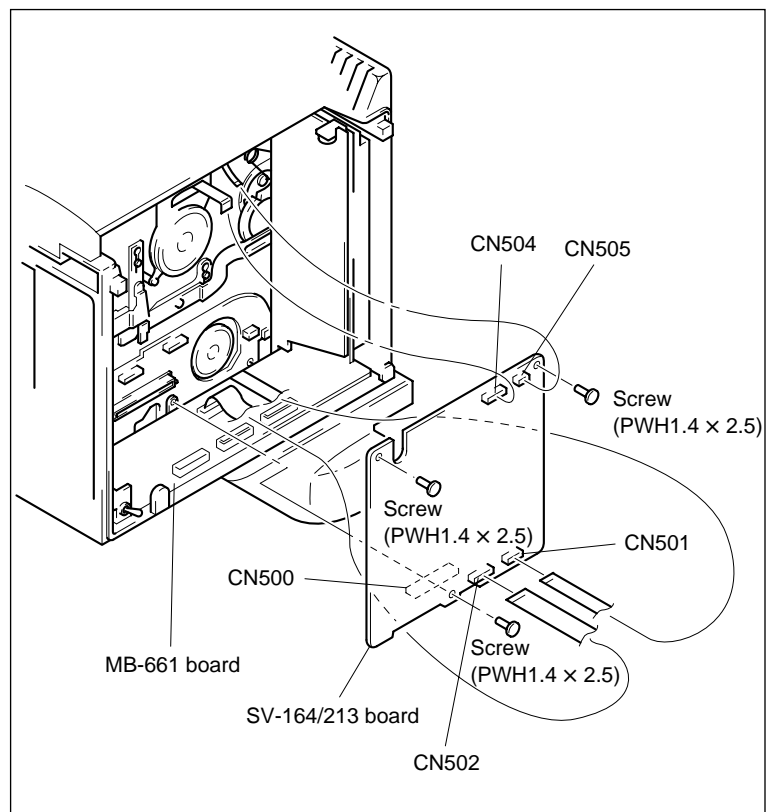
To prevent damage to the board, slowly pull CN500.

Precautions on Attaching :

When inserting CN500, be careful not to press the component side too strongly.

Precautions on Removal/Attaching :

Be careful not to damage the connectors, harness and flexible card wires connected to the MB-661 board.

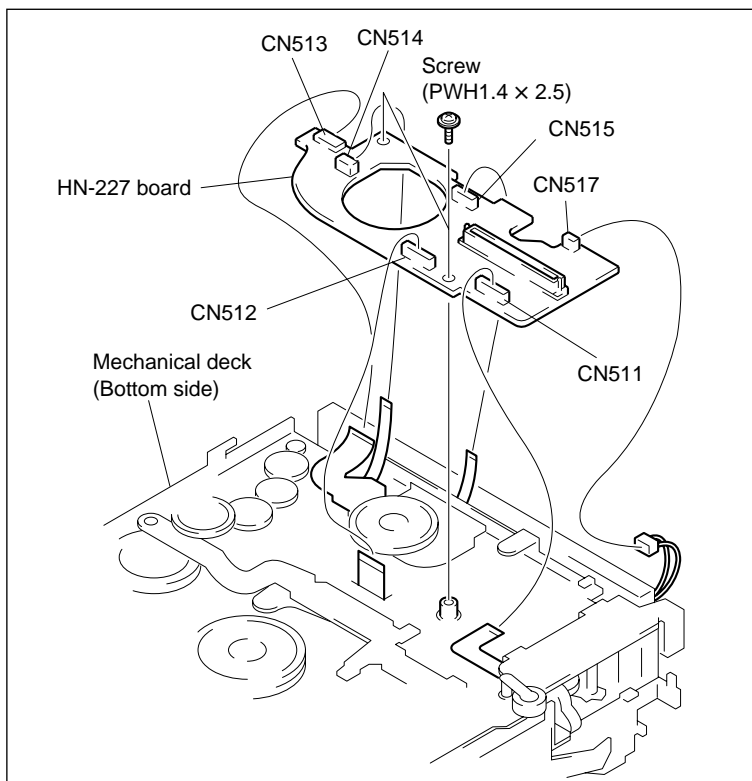


2-13-4. HN-227 Board

1. Remove the mechanical deck.
(Refer to Section 2-11.)
2. Remove the SV-164/213 board.
(Refer to Section 2-13-3, steps 5 and 6.)
3. Disconnect the five flexible card wires (CN511, CN512, CN513, CN514, and CN515) of the HN-227 board.
4. Disconnect the one connector (CN517).
5. Remove the two screws (PWH1.4 × 2.5) and remove the HN-227 board.

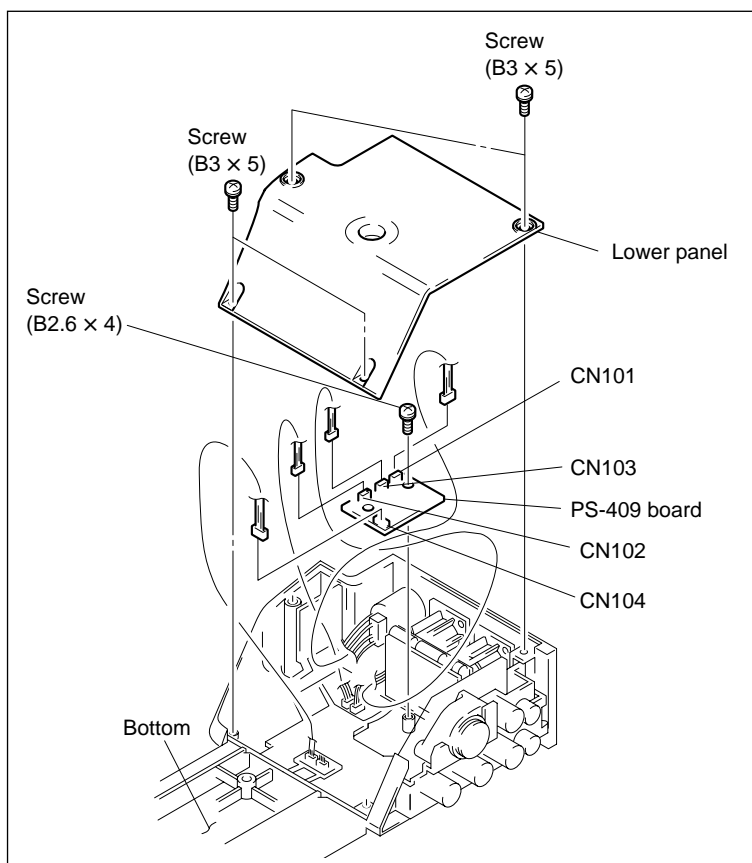
Note

When replacing the HN-227 board, remove IC 1 from the former HN-227 board, then mount it on the new HN-227 board.



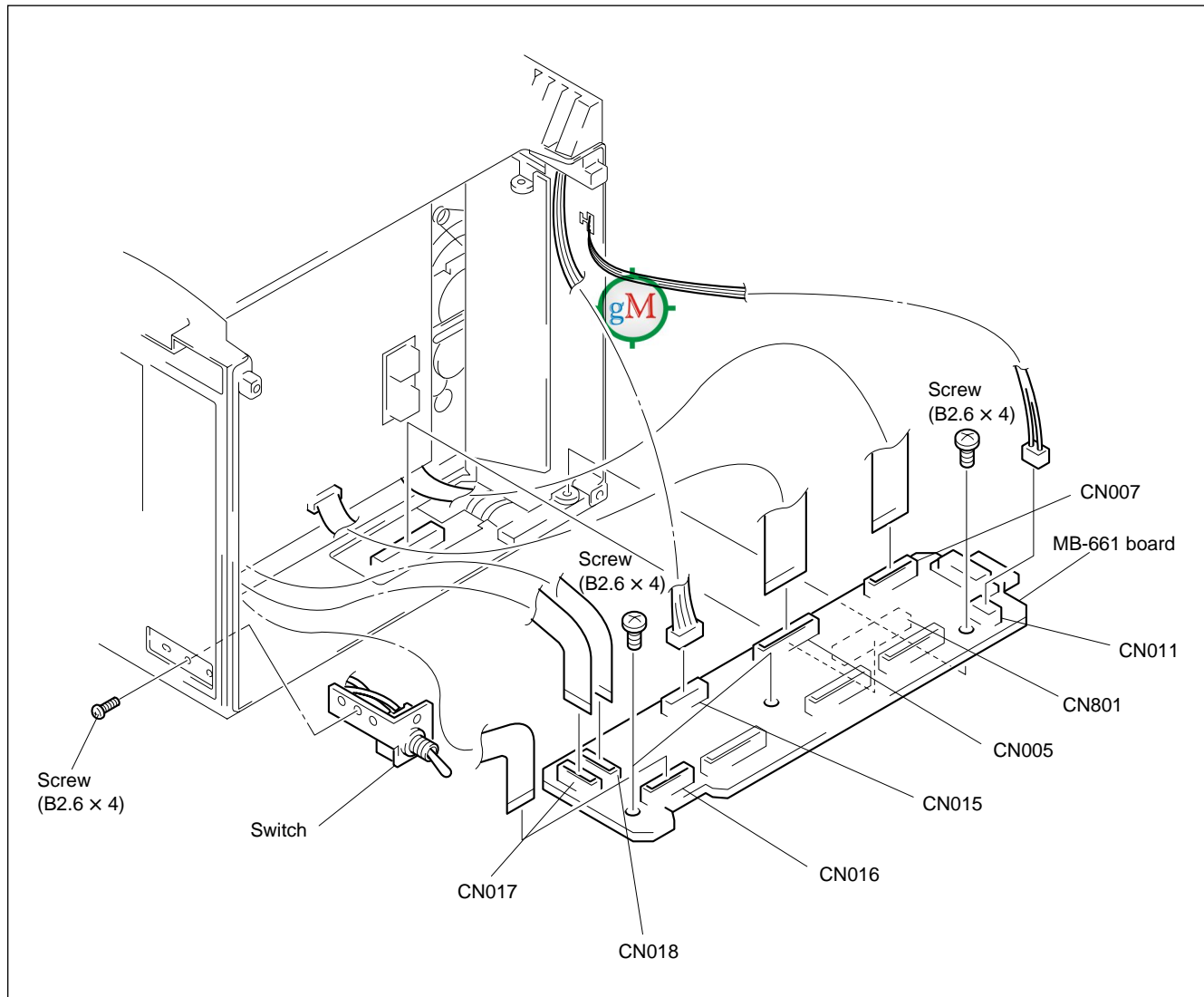
2-13-5. PS-409 Board

1. Remove the lower panel.
(Refer to Section 2-1.)
2. Disconnect the four connectors (CN101, CN102, CN103, CN104) of the PS-409 board.
3. Remove the screw (B2.6 × 4) and remove the board.



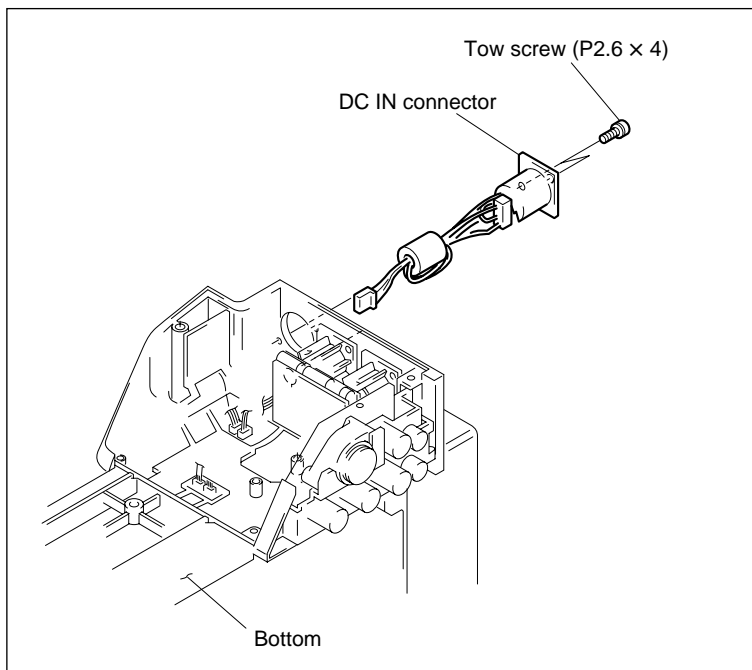
2-13-6. MB-661 Board

1. Remove the PS-409 board. (Refer to Section 2-13-5.)
2. Disconnect the two connectors (CN010, CN013) of the MB-661 board.
3. Loosen the four attaching screws and open the right side panel.
4. Disconnect the three flat cables (CN001, CN002, CN003) of the MB-661 board.
5. Remove the right side panel (with the FP-81 board attached). (Refer to Section 2-1.)
6. Remove the VA-172/172P/205B/205C board (with the IV-50 and IPM-66 boards attached). (Refer to Section 2-13-2.)
7. Disconnect the two flat cables (CN005, CN007) three flexible card wires (CN016, CN017, CN018) and two connectors (CN001, CN015) from the MB-661 board.
8. Remove the screw (B2.6 × 4), and remove the POWER switch.
9. Remove the DC-DC converter. (Refer to Section 2-12.)
10. Remove the three screws (B2.6 × 4).
11. Disconnect CN801, and remove the board.



2-13-7. CP-283 Board

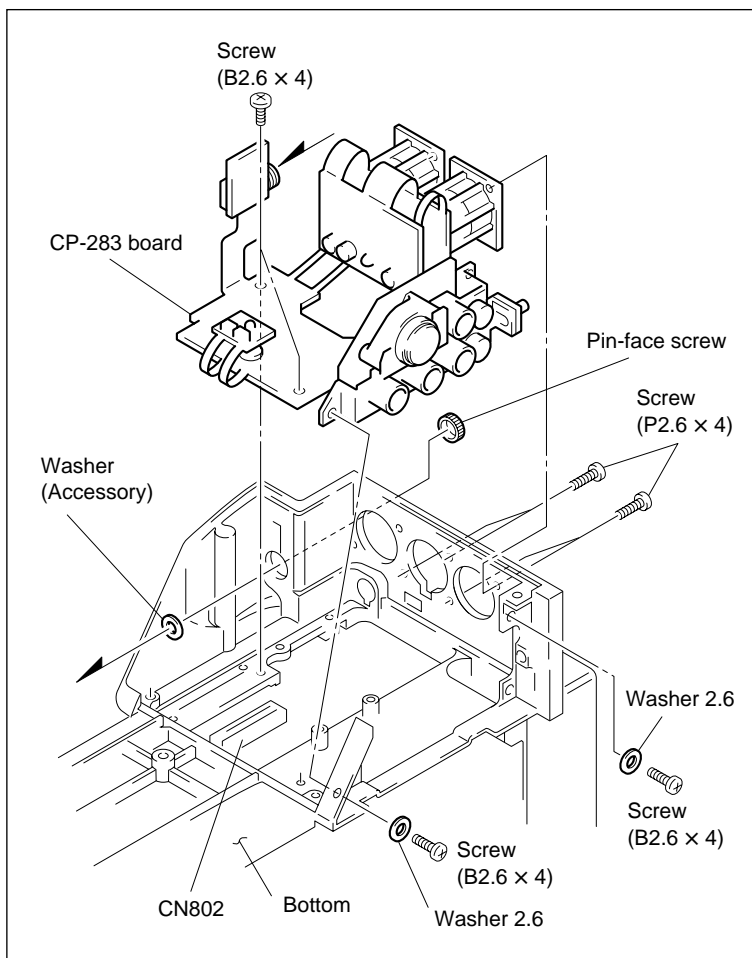
1. Remove the PS-409 board.
(Refer to Section 2-13-5.)
2. Remove the two screws (P2.6 × 4), and disconnect the DC IN connector.



3. Remove the pin-face screw of the EAR-PHONE jack.
4. Remove the left side panel.
(Refer to Section 2-1.)
5. Remove the eight screws (B2.6 × 4, P2.6 × 4).
6. Disconnect the CP-283 board from CN802.

Notes

- The CP-283 board for repairing is provided with the protector board.
Remove the protector board before attaching the CP-283 board to the unit.
- Be careful not to damage the relay card wire when removing and attaching the board.

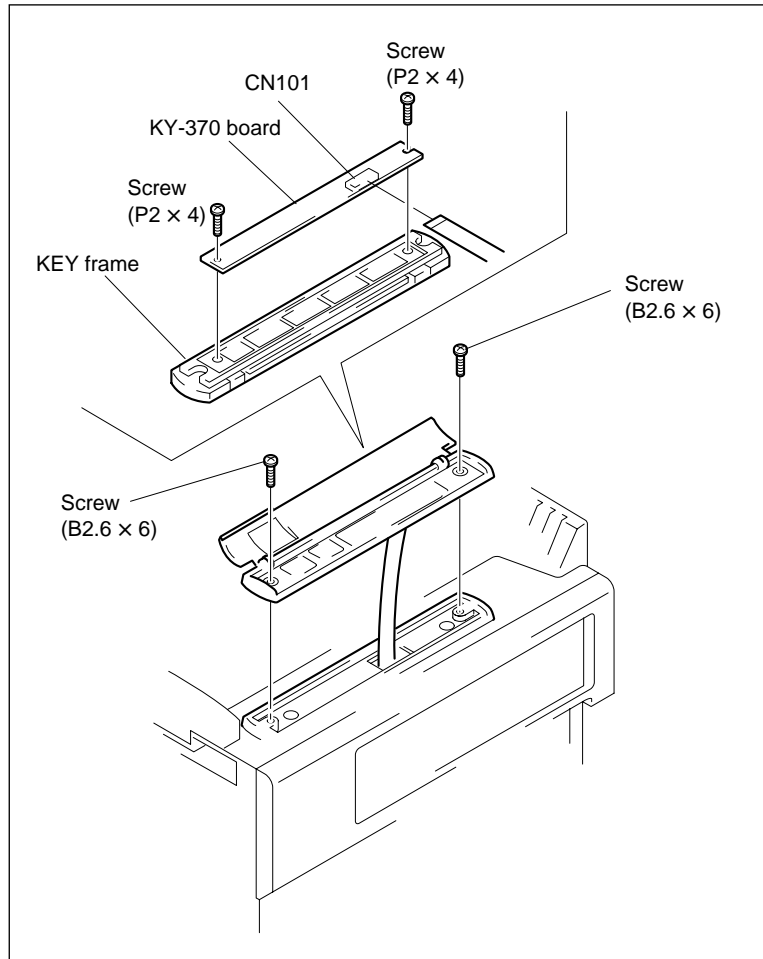


2-13-8. KY-370 Board

1. Remove the two screws (B2.6 × 6).
2. Disconnect the flat cable (CN101).
3. Remove the two screws (P2 × 4) and remove the board.

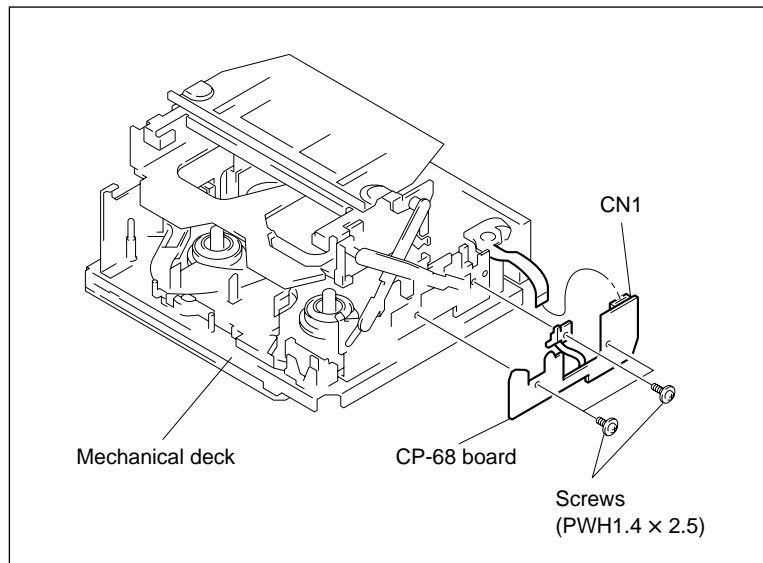
Precautions on Attaching :

When attaching the KY-370 board to the KEY frame, be sure to tighten the screws on a flat surface to prevent warps.



2-13-9. CC-68 Board

1. Remove the mechanical deck.
(Refer to Section 2-11.)
2. Disconnect the flat cable (CN1) of the CC-68 board.
3. Remove the two screws (PWH1.4 × 2.5), and remove the board.

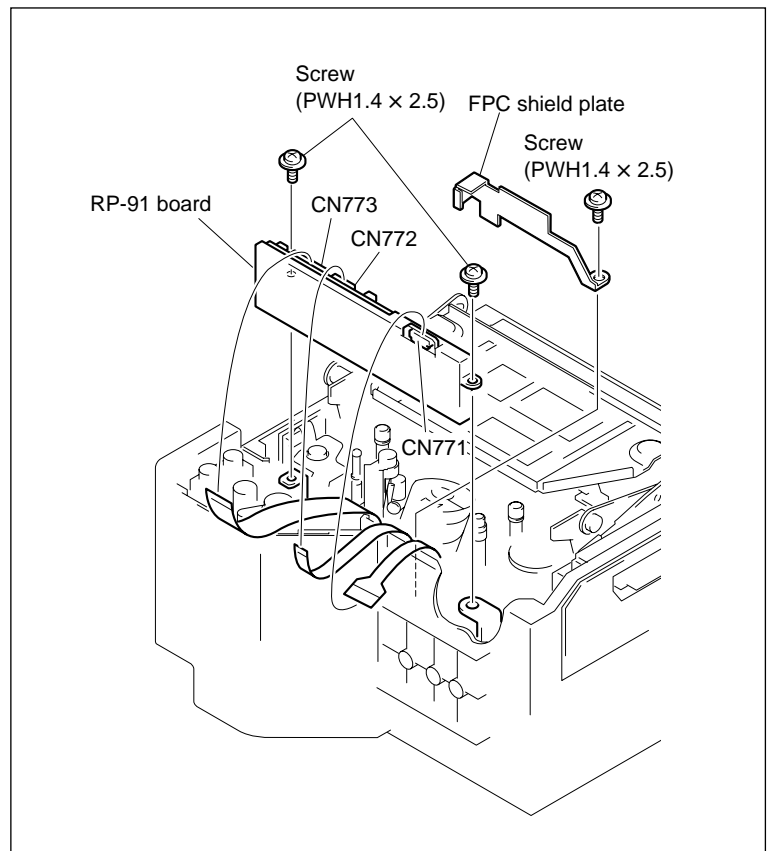


2-13-10. RP-91 Board

1. Remove the left side panel.
(Refer to Section 2-1.)
2. Remove the flexible card wires (CN771) and two flat cables (CN772, CN773).
3. Remove the three screws (PWH1.4 × 2.5) and remove the FPC shield plate and RP-91 board.

Note

Be sure to perform Section 7 VTR Block Electrical Alignment after the replacement of RP-91 board.



2-14. Cleaning when Head Clogs

When the video head clogs, clean it as follows.

2-14-1. Using a cleaning cassette

1. Load the DVL-12CL cleaning cassette into the unit, play for 5 seconds, and then eject promptly.

Notes

- Be sure to use the DVL-12CL cleaning cassette tape. Use of other types will cause abnormal wear of the video head or damage to the video head.
 - Do not rewind and use the cleaning cassette tape.
2. Check that the head clog has been solved. If the head remains clogged even after using the cleaning cassette, clean the video head as follows.

2-14-2. Using the Cleaning Cloth

1. Using a cleaning cloth moistened with cleaning liquid, gently touch the cloth on the video head.
2. Rotate the drum slowly in the rotating direction of the head (towards the left from the top) with your fingers, and clean the video head.

Notes

- Do not move the cleaning cloth over the video head in the up and down direction as this may damage the video head.
- Turn OFF the power when cleaning.

2-15. Turning OFF the HUMID TUNER When Condensation Occurs

To protect the tape when condensation occurs, HUMID ALARM is displayed, and the VTR stops for a specified time set by the HUMID TIMER.

HUMID TIMER is a timer to stop operations for protecting the tape when condensation occurs. It is a function provided for the unit to clear condensation naturally.

When the condensation is cleared manually, the HUMID TIMER will not be turned OFF even when there is no condensation, and the unit will not operate.

To clear the condensation manually, and to operate the VTR, turn OFF the HUMID TIMER as follows.

1. Set the SYSTEM MENU (Refer to Section 2-25), and set the HUMID TIMER OFF mode (Menu No. 509).



Note

XXX indicates the remaining time.

2. Press the RESET button twice, and if XXX is 0, it means that the HUMID TIMER has been turned OFF.

Note

However it will not be turned OFF when there is condensation.

2-16. Connecting Connectors

When connecting cables to connectors in installation and servicing, attach the following connectors or equivalent product to the tip of the cables.

Panel Display	Connecting Connector
AUDIO IN CH-1/2 (+48 V)	1-508-084-00 CONNECTOR, XLR 3P, MALE
DC IN	1-508-362-00 CONNECTOR, XLR 4P, FEMALE
TC IN/OUT	1-560-069-11 CONNECTOR, BNC, MALE
GENLOCK IN	1-560-069-11 CONNECTOR, BNC, MALE
VIDEO OUT	1-560-069-11 CONNECTOR, BNC, MALE
EAR PHONE	PLUG, MINI, STEREO
50 pin connector (PRO 50P)	1-566-581-11 CONNECTOR 50P, MALE
76 pin connector (PRO 76P DIGITAL)	1-778-730-11 CONNECTOR 76P, MALE
DC OUT (+12 V)	1-566-425-11 PLUG, 4P, MALE
AUDIO OUT CH-1/2	1-506-311-00 RCA PIN, MALE
S-VIDEO OUT	S-VIDEO CONNECTOR CABLE (Option): YC-30 V (3 m) YC-15 V (1.5 m)

2-17. Input/Output Signals of Connectors

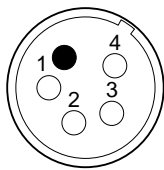
Inputs

GENLOCK IN :	BNC type 1.0 V p-p, 75 Ω , negative sync
TC IN :	BNC type 0.5 to 18 V p-p, 10 k Ω
AUDIO IN CH-1/2 :	XLR 3P FEMALE -60 dB, 3 k Ω +4 dBu, 10 k Ω (0 dBu = 0.775 Vrms)
Camera connector :	PRO 76P DIGITAL or PRO 50P
DC IN :	XLR 4P

Outputs

VIDEO OUT :	BNC type 1.0 V p-p, 75 Ω , negative sync
TC OUT :	BNC type 1.0 V p-p, 75 Ω
EAR PHONE :	$-\infty$ to -15.5 dBu variable, 8 Ω (Stereo mini jack)
S-VIDEO :	DIN 4P Y : 1.0 V p-p, 75 Ω , negative sync C : <For DSR-1> 0.286 V p-p (burst level), 75 Ω <For DSR-1P> 0.3 V p-p (burst level), 75 Ω
AUDIO OUT :	RCA -10 dBu, 47 k Ω
CH-1/2	
DC OUT :	XLR 4P

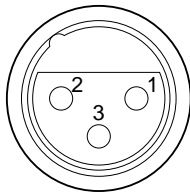
DC IN (4P, MALE)



(External view)

Pin No.	Signal	Specification
1	EXT DC IN (G)	GND
2	—	—
3	—	—
4	EXT DC IN (X)	+11 to +17 V dc

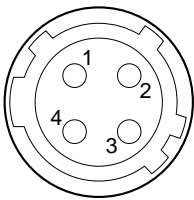
CH-1/CH-2 AUDIO IN (+48 V) (3P, FEMALE)



(External view)

Pin No.	Signal	Specification
1	MIC IN (G)	GND
2	MIC IN (X)	
3	MIC IN (Y)	

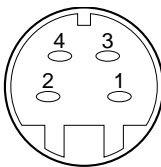
DC OUT (4P, FEMALE)



(External view)

Pin No.	Signal	Specification
1	EXT DC OUT (G)	GND
2	—	—
3	—	—
4	EXT DC OUT (X)	+11 to +17 V dc

S-VIDEO (DIN 4P)

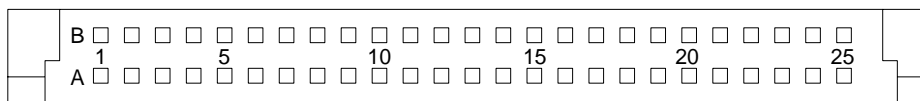




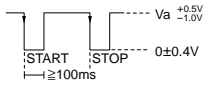
(External view)

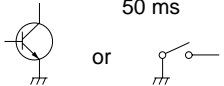
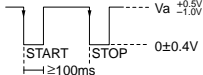
Pin No.	Signal
1	Y (G)
2	C (G)
3	Y (X)
4	C (X)

50 Pin Connector (50P, FEMALE)

<external view>

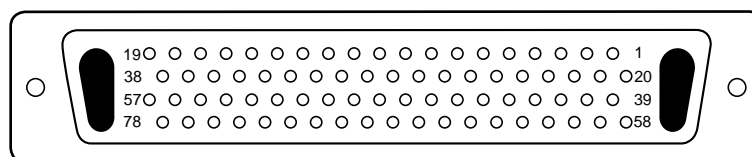


Pin No.	Input/Output Signal	Specification			Remarks
		Camera	Direction	VTR	
A1	MODE ID	MODE ID 100 k Ω \pm 10 % 5.0 V dc \pm 10 %, Pull up	←	MODE ID OPEN: Y/R-Y/B-Y mode GND: R/G/B mode	
B1	CHASSIS GND		↔		
A2	MIC1 (Y)	−60 dBu	→	Zi \geq 3 k Ω	
B2	MIC1 (X)				
A3	MIC1 (G)				
B3	EAR PHONE (GND)	Zi = 750 Ω \pm 10 %	←	Zo \leq 100 Ω , −6 dBu	0 dBu = 0.775 Vrms
B4	EAR PHONE (X)				
A4	REC/TALLY INDICATION	Zi \geq 600 Ω	←	ON: 4.0 to 5.5 V dc OFF: 0 \pm 0.2 V dc	
B5	REC STATUS (REC RESET)	Zi \leq 10 k Ω 5.0 V dc \pm 10 %, Pull up REC: H	←	Open collector	
A5	VTR TRIGGER (L: VTR START/STOP)	ON↔OFF START/STOP Vceo \geq 12 V  or 	→	Zi \geq 10 k Ω Pull up Va \leq 10 V	
A6	S. D. (V/C)	Zi \geq 47 k Ω , Pull up	←	Zo \leq 1 k Ω , H: 5.0 $\begin{smallmatrix} +0.5 \\ -1.0 \end{smallmatrix}$ V L: 0 \pm 0.5 V	
B6	S. D. (C/V)	Zo \leq 1 k Ω , H: 5.0 $\begin{smallmatrix} +0.5 \\ -1.0 \end{smallmatrix}$ V L: 0 \pm 0.5 V	→	Zi \geq 47 k Ω , Pull up	
A7	S. CLOCK	Zi \geq 47 k Ω , Pull up	←	Zo \leq 1 k Ω , H: 5.0 $\begin{smallmatrix} +0.5 \\ -1.0 \end{smallmatrix}$ V L: 0 \pm 0.5 V	
B7	S. CS	Zi \geq 47 k Ω , Pull up	←	Zo \leq 1 k Ω , H: 5.0 $\begin{smallmatrix} +0.5 \\ -1.0 \end{smallmatrix}$ V L: 0 \pm 0.5 V	
A8	GEN LOCK VIDEO (G)	Zi \geq 1 k Ω \pm 5 %	←	Zo \geq 75 Ω \pm 10 % W/camera V dc = 0 \pm 0.2 V dc VBS: 1.0 V p-p sync: negative	
B8	GEN LOCK VIDEO (X)				
A9	SYNC, CF (G)		↔		
B9	COMP. SYNC (X)	H: 4.0 to 5.5 V p-p; negative, L: 0 \pm 0.4 V dc Zo \leq 2 k Ω	→	Zi \geq 10 k Ω	
A10	PLAYBACK VIDEO (G)	Zi \geq 1 k Ω \pm 5 %	←	1.0 V p-p sync: negative Zo \leq 75 Ω \pm 5 % V dc = 0 \pm 0.2 V dc	
B10	PLAYBACK VIDEO (X)				
A11	COLOR FRAMING PULSE (X)	H: 4.0 to 5.5 V p-p; negative, L: 0 \pm 0.4 V dc Zo \leq 2 k Ω	→	Zi \geq 10 k Ω	

Pin No.	Input/Output Signal	Specification			Remarks
		Camera	Direction	VTR	
B11	PLAYBACK STATUS (VF H: CAM/L: PB)	$Z_i \geq 1 \text{ k}\Omega$ 4.5 to 9.5 V dc, Pull up	←	CAM mode: OPEN PB mode: $0 \pm 0.4 \text{ V dc}$	
A12	VBS (G)	1.0 V p-p $\pm 10 \%$,	→	$Z_i = 75 \Omega \pm 5 \%$	
B12	VBS (X)	$Z_o \leq 75 \Omega \pm 5 \%$, V dc = $0 \pm 0.2 \text{ V}$			
A13	VTR SAVE	STANDBY: 4.0 to 5.5 V dc SAVE: $0 \pm 0.25 \text{ V dc}$ $Z_o \leq 100 \Omega$	→	$Z_i \geq 1 \text{ k}\Omega$	
B13	VTR/CCU CONT	VTR : $0 \pm 0.25 \text{ V dc}$, CCU : $5.0 \pm 0.5 \text{ V dc}$, $Z_o \leq 1 \text{ k}\Omega$	→	$Z_i \geq 4.7 \text{ k}\Omega$	VTR : Open
A14	NC				
B14	NC				
A15	NC				
B15	NC				
A16	Y/R-Y/B-Y (G)		→		
B16	R-Y (X)	0.756 V p-p, setup 0 % $Z_o = 50 \text{ to } 75 \Omega$	→	$Z_i = 1 \text{ k}\Omega \pm 2 \%$	
A17	Y (X)	0.714 V p-p, sync 0.286 V p-p, setup 0 % $Z_o = 50 \text{ to } 75 \Omega$	→		
B17	B-Y (X)	0.756 V p-p, setup 0 % $Z_o = 50 \text{ to } 75 \Omega$	→		
A18	BATT ALARM (BATT IND)	$Z_o = 470 \text{ to } 10 \text{ k}\Omega$	←	ON: 2.0 to 3.0 V dc (470 Ω) OFF: $0 \pm 0.4 \text{ V dc}$	
B18	REC REVIEW (L: RETURN CONTROL)	ON ↔ OFF OPEN ↔ CLOSE → START/STOP START/STOP Vceo $\geq 12 \text{ V}$ chattering \leq 50 ms 	→	$Z_i \geq 10 \text{ k}\Omega$ Pull up $V_a \leq 10 \text{ V}$	
A19	SERIAL DATA (X) (CAMERA SO)		↔		Non Connection
B19	SERIAL DATA (G)				
A20	NC				
B20	NC				
A21	NC				
B21	GND				
A22	POWER +12 V DC		←	Min.: 10.6 V dc at 2A	
B22	POWER +12 V DC			Max.: 17.0 V dc	
A23	POWER GND		←		
B23	POWER GND				
A24	SPARE				
B24	SPARE				
A25	CHASSIS GND		↔		
B25	CHASSIS GND				

76 Pin Connector (76P, FEMALE)

<external view>



Pin No.	Input/Output Signal	Specification
1	REC TALLY IN	$Z_i \geq 600 \Omega$
2	S.D. (V/D) IN	H: 5 V L: $0 \pm 0.5 \text{ V}$
3	SCL VTR IN	$Z_i: \geq 47 \text{ k}\Omega$ $Z_o: \geq 1 \text{ k}\Omega$
4	GENLOCK (G) IN	VBS: 1.0 V p-p $Z_i \geq 1 \text{ k}\Omega$
5	SYNC (G) IN	H: 4.0 to 5.5 V p-p NEGATIVE L: $0 \pm 0.4 \text{ V dc}$ $Z_o \leq 2 \text{ k}\Omega$
6	PB (G) IN	1.0 V p-p $Z_i \geq 10 \text{ k}\Omega$
7	PB (Y) (X) IN	1.0 V p-p, NEGATIVE, $Z_i \geq 1 \text{ k}\Omega$
8	VBS (CA) (G) OUT	1.0 V p-p, SYNC NEGATIVE $Z_o = 75 \Omega \pm 5 \%$
9	VTR/CCU OUT	VTR: $0 \pm 0.25 \text{ V}$ $Z_o \leq 1 \text{ k}\Omega$ CCU: $5.0 \pm 0.5 \text{ V}$
10	C (X) OUT	NTSC: $0.286 \text{ V p-p} \pm 10 \%$ PAL: $0.300 \text{ V p-p} \pm 10 \%$ $Z_o \leq 75 \Omega \pm 5 \%$
11	Y (X) OUT	1.0 V p-p, SYNC NEGATIVE $Z_o \leq 75 \Omega \pm 5 \%$
12	R/R-Y (CA) OUT	R/G/B 1.4 V p-p, POSITIVE
13	B/B-Y (CA) OUT	$Z_o \leq 75 \Omega \pm 5 \%$ COMPONENT OUT
14	SKIN GATE OUT	Gate area (H: 4 to 5.5 V dc) Non gate area (L: $0 \pm 0.2 \text{ V dc}$)
15	+5.0V OUT	$\pm 0.1 \text{ V}$
16	AGND	REG, GND
17	EXT DC IN	10.6 V to 17.0 V dc
18	EXT DC GND	GND for $\pm 12 \text{ V dc}$
19	DCLK (X) OUT	
20	VTR TRIG OUT	
21	S.D. (C/V) OUT	H: 5 V L: $0 \pm 0.5 \text{ V}$
22	CS VTR IN	$Z_i: \geq 47 \text{ k}\Omega$ $Z_o: \leq 1 \text{ k}\Omega$
23	GENLOCK (X) IN	$Z_i \geq 1 \text{ k}\Omega$
24	SYNC (X) IN	H: 4.0 to 5.5 V p-p NEGATIVE L: $0 \pm 0.4 \text{ V dc}$ $Z_o: \leq 2 \text{ k}\Omega$

Pin No.	Input/Output Signal	Specification
25	PB (VBS) (X) IN	$Z_i \geq 10 \text{ k}\Omega$
26	CF/V RESET I/O	H: 4.0 to 5.5 V p-p $Z_o \leq 2 \text{ k}\Omega$ L: $0 \pm 0.4 \text{ V dc}$
27	VBS (CA) (X) OUT	1.0 V p-p, SYNC NEGATIVE $Z_o = 75 \Omega \pm 5 \%$
28	C (G) OUT	NTSC: $0.286 \text{ V p-p} \pm 10 \%$ PAL: $0.300 \text{ V p-p} \pm 10 \%$ $Z_o \leq 75 \Omega \pm 5 \%$
29	Y (G) OUT	1.0 V p-p, SYNC NEGATIVE $Z_o \leq 75 \Omega \pm 5 \%$
30	COMP GND	R/G/B 1.4 V p-p, POSITIVE
31	G/Y (CA) OUT	$Z_o \leq 75 \Omega \pm 5 \%$ COMPONENT OUT
32	BATT S.DATA IN	
33	+9.0 V OUT	8.3 V to 9.1 V
34	-5.0 V OUT	$\pm 0.1 \text{ V}$
35	EXT DC IN	10.6 V to 17.0 V dc
36	EXT DC GND	GND for $\pm 12 \text{ V dc}$
37	DCF OUT	
38	DCLK GND	
39	MODE ID IN	
40	MIC1 (G) OUT	OPEN: COMP, GND: R/G/B
41	AUDIO LEV OUT	H: 4 to 5.5 V dc, L: $0 \pm 0.2 \text{ V dc}$, $1 \text{ k}\Omega$
42	(SPARE)	
43	DIGI/ANA IN	H: Analog, L: Digital
44	(SPARE)	
45	(SPARE)	
46	(SPARE)	
47	(SPARE)	
48	(SPARE)	
49	(SPARE)	
50	(SPARE)	
51	(SPARE)	
52	DCLK GND	H: $3 \pm 0.2 \text{ V dc}$, L: $0 \pm 0.2 \text{ V dc}$
53	BYRY (0) OUT	
54	BYRY (2) OUT	
55	BYRY (4) OUT	
56	BYRY (6) OUT	

Pin No.	Input/Output Signal	Specification
57	BYRY (8) OUT	
58	MIC1 (X) OUT	−20 dBm, $Z_o \leq 100 \Omega$
59	MIC1 (Y) OUT	
60	(SPARE)	
61	(SPARE)	
62	76P ID	
63	(SPARE)	
64	(SPARE)	
65	(SPARE)	
66	(SPARE)	
67	(SPARE)	
68	(SPARE)	
69	(SPARE)	
70	(SPARE)	
71	(SPARE)	
72	BYRY (1) OUT	H: 3 ± 0.2 V dc, L: 0 ± 0.2 V dc
73	BYRY (3) OUT	
74	BYRY (5) OUT	
75	BYRY (7) OUT	
76	BYRY (9) OUT	

*1 : <For DSR-1 : UC>

Y 0.714 V p-p
R-Y 0.700 V p-p
B-Y 0.700 V p-p

<For DSR-1P : CE>

Y 0.700 V p-p
R-Y 0.525 V p-p
B-Y 0.525 V p-p

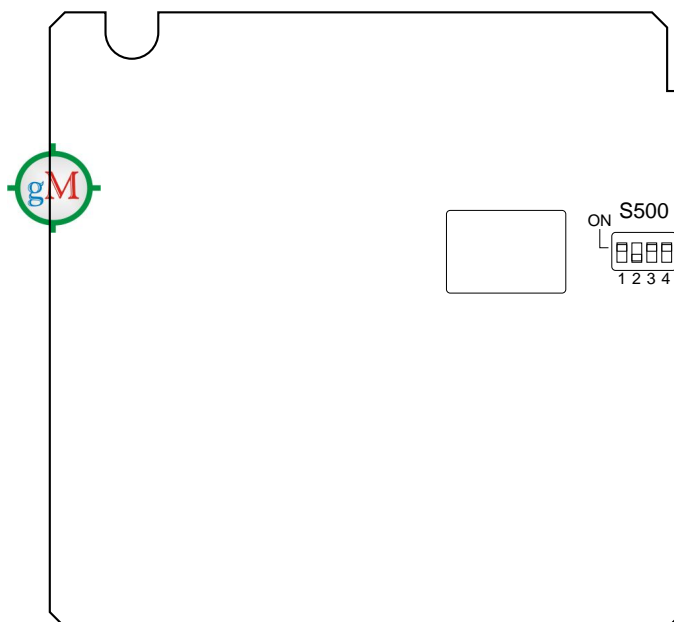
2-18. System Select Switch Settings

2-18-1. SV-164/213 Board

• S500

Settings at shipment: ☐

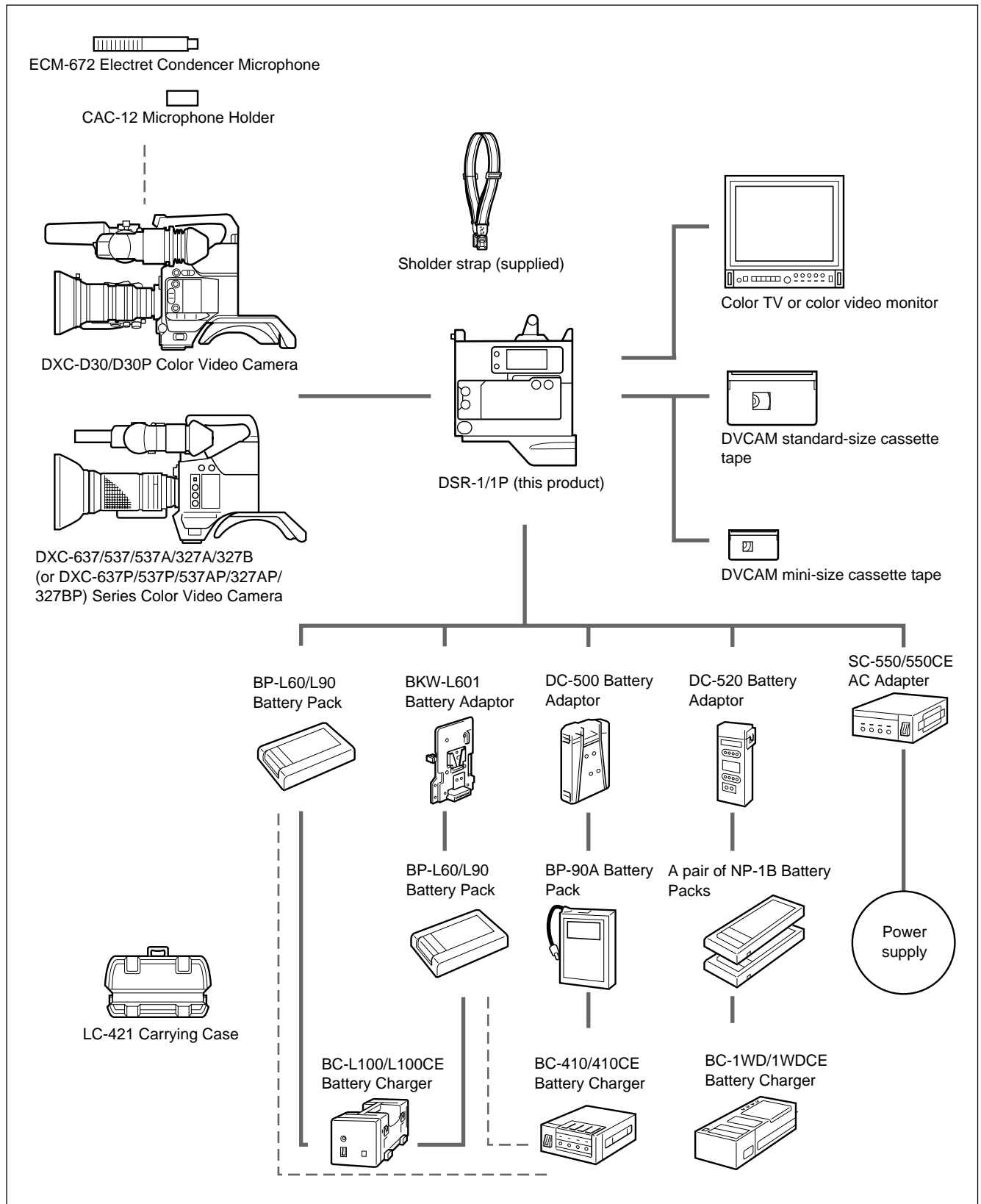
1. DESTINATION setting
☐ ON: NTSC
OFF: PAL
2. DESTINATION setting (Effective when pin 1 is on.)
ON : UC
☐ OFF: J
3. DEBUGGING mode setting (for designer)
☐ ON: At shipment and all times
4. SLACK DETECTION ON/OFF switching
☐ ON: SLACK mute off
OFF: SLACK mute on



SV-164/213 board (A side)

2-19. System Configuration

This product can be docked and used with the DXC-D30/D30P digital video camera or with a DXC-637/537/537A/327A Series analog video camera



2-20. Changing the Battery Before End/ Battery End and BP Battery Preset Voltage

2-20-1. Changing the voltage (1)

The battery before end/battery end and BP battery preset voltage can be changed as follows with an external DC power supply from the SYSTEM MENU.

Settable range : 11.0 to 12.5 V (Battery before end/
battery end)

12.0 to 15.9 V (BP battery preset)

Settable unit : 0.1 V

Settings at shipment : Battery before end voltage : 11.3 V

Battery end voltage : 10.98 V

BP battery preset voltage : 13.0 V

Equipment required : Camera (DXC-D30/D30P/637/
637P, etc.), DC power supply,
Digital voltmeter, DVCAM cassette
tape

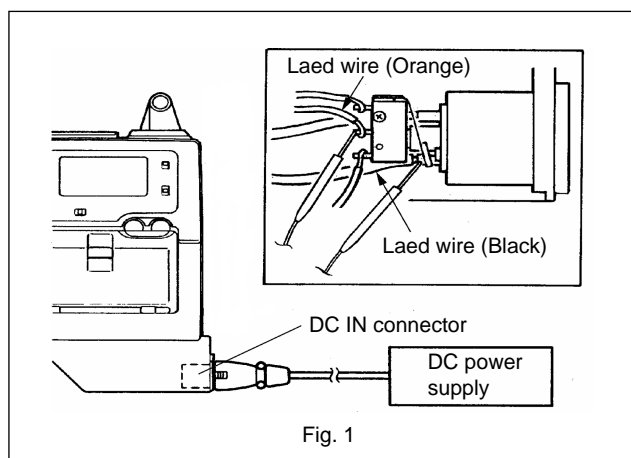
Switch settings : LIGHT, BACK TALLY ; OFF

Preparation

1. Remove the bottom panel. (Refer to Section 2-1.)
2. Connect the camera (DXC-D30/D30P/637/637P) to DSR-1/1P.
3. Connect the DC power supply to the DC IN connector.
4. Insert a cassette tape, and set the unit into the REC mode.

Notes

- Touch the lead tip of the digital voltmeter to the DC connector as shown in Fig. 1, and adjust the DC power supply to the desired voltage.
- Be careful not to touch the lead tip of the digital voltmeter to the chassis and other connector pins, etc. to prevent the circuit from short-circuiting.



Setting the battery before end

1. Set the SYSTEM MENU (Refer to Section 2-25), and select the “Battery before end setting mode” (Menu No. 501) (Fig. A.).
2. Press the RESET (MENU SET) button to blink the voltage displayed on the display window (Fig. B.). Input the desired voltage measured with the digital voltmeter into the DC IN connector. (Fig. 1.)
3. Press the RESET (MENU SET) button. (The value set will be written in the EEPROM) and “YES” will be displayed when the desired voltage is set (Fig. C.). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. D.).

In this case, repeat steps 1 to 3.

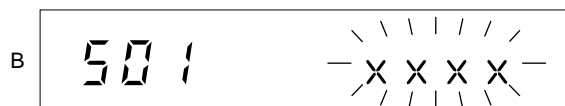
Note

The voltage value shown on the display window is for reference only.

Display window (LCD)



Blinking menu No. (When changed)



Voltage and A/D conversion value can be input



Save OK



Save NG

Setting the battery end

1. Set the SYSTEM MENU (Refer to Section 2-25), and select the “Battery end setting mode” (Menu No. 502) (Fig. A’).
2. Press the RESET (MENU SET) button to blink the voltage displayed on the display window (Fig. B’). Input the desired voltage measured with the digital voltmeter into the DC IN connector. (Fig. 1.)
3. Press the RESET (MENU SET) button. (The value set will be written in the EEPROM) and “YES” will be displayed when the desired voltage is set (Fig. C’). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. D’).

In this case, repeat steps 1 to 3.

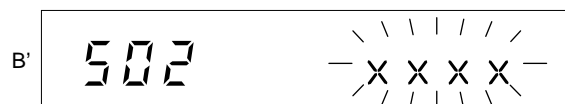
Notes

- VTR operations stop according to the battery end voltage set.
Set the voltage as 10.98 ± 0.01 V.
- The voltage value shown on the display window is for reference.
- If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET (MENU SET) button, the data being set will be written.

Display window (LCD)



Blinking menu No. (When changed)



Voltage and A/D conversion value can be input



Save OK



Save NG

Setting the BP battery preset


- 1. Set the SYSTEM MENU (Refer to Section 2-25), and select the “BP battery preset mode” (Menu No. 513) (Fig. A”).
 - 2. Press the RESET (MENU SET) button to blink the voltage displayed on the display window (Fig. B”). Input the desired voltage measured with the digital voltmeter into the DC IN connector. (Fig. 1.)
 - 3. Press the RESET (MENU SET) button. (The value set will be written in the EEPROM) and “YES” will be displayed when the desired voltage is set (Fig. C”). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. D”).
- In this case, repeat steps 1 to 3.

Notes

- Set the voltage as 13.00 ± 0.01 V.
- The voltage value shown on the display window is for reference.
- If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET (MENU SET) button, the data being set will be written.

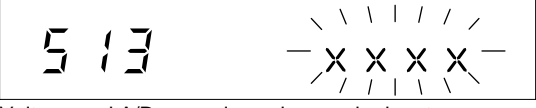
Display window (LCD)

A”




Blinking menu No. (When changed)

B”




Voltage and A/D conversion value can be input

C”



Save OK

D”



Save NG

2-20-2. Changing the Voltage (2)

The battery before end/battery end and BP battery preset voltage can be changed according to the following procedure from the SYSTEM menu without the equipment listed in the previous section 2-20-1. However, the voltage can be changed more accurately using the method described in the previous section, it is recommended that the voltage be changed using that method.

Settable range : 11.0 to 12.5 V (Battery before end/
battery end)

12.0 to 15.9 V (BP battery preset)

Setting at shipment : Battery before end voltage 11.3 V

Battery end voltage 10.98 V

BP battery preset voltage 13.0 V

Standard values at shipment :

<Battery before end/battery end>

Voltage	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0
(V)											

Standard	b0	b6	bb	c0	c5	cA	d0	d4	dA	dF	E3
value											

<BP battery preset>

Voltage	13.0	12.6	12.7	12.8	12.9	13.0	13.1	13.2	13.3	13.4	13.5
(V)											

Standard	42	47	4c	51	56	5b	61	66	6b	70	76
value											

Note

The standard value may differ according to the unit.

The above values are average values.

Switch setting : BACK TALLY ; OFF

Setting

1. Turn ON the power.

Setting the battery before end

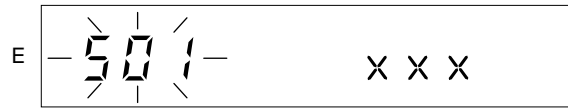
1. Set the SYSTEM MENU (Refer to Section 2-25), and select the “Battery before end setting mode” (Menu No. 501) (Fig. E).
2. Press the RESET (MENU SET) button to blink the voltage on the display window (Fig. F).
3. Press the SHIFT button while pressing the ADVANCE button.
4. Note down the voltage on the display window.
5. Change the value by pressing the ADVANCE button, and move to the next digit with the SHIFT button (Fig. G).
For your reference, the voltage increases by about 0.02V when the right digit value is increased by one step.
6. Press the RESET (MENU SET) button. (The value set will be written in the EEPROM). “YES” will be displayed when the desired voltage is set (Fig. H). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. I).

In this case, repeat steps 1 to 6.

Notes

- The voltage value shown on the display window is for reference only.
- If the value at step 4 was not taken down, change the value using the values at shipment on the previous page as reference.
- If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET (MENU SET) button, the data being set will be written.

Display window (LCD)



Blinking menu No. (When changed)



The voltage display blinking



A/D conversion value blinking display



Save OK



Save NG

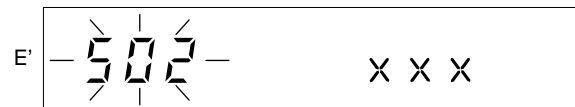
Setting the battery end

1. Set the SYSTEM MENU (Refer to Section 2-25), and select the “Battery end setting mode” (Menu No. 502) (Fig. E’).
2. Press the RESET (MENU SET) button to blink the voltage on the display window (Fig. F’).
3. Press the SHIFT button while pressing the ADVANCE button.
4. Note down the voltage on the display window.
5. Change the value by pressing the ADVANCE button, and move to the next digit with the SHIFT button (Fig. G’).
For your reference, the voltage increases by about 0.02 V when the right digit value is increased by one step.
6. Press the RESET (MENU SET) button. (The value set will be written in the EEPROM). “YES” will be displayed when the desired voltage is set (Fig. H’). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. I’). In this case, repeat steps 1 to 6.

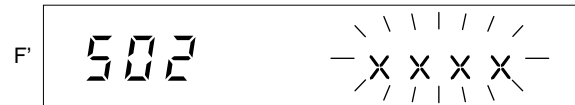
Notes

- VTR operations stop according to the battery end voltage set.
Set the voltage as 10.98 ± 0.01 V.
- The voltage value shown on the display window is for reference.
- If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET (MENU SET) button, the data being set will be written.
- If the value at step 4 was not taken down, change the value using the values at shipment on the previous page as reference.

Display window (LCD)



Blinking menu No. (When changed)



The voltage display blinking



A/D conversion value blinking display



Save OK



Save NG

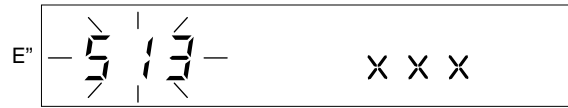
Setting the BP battery preset

1. Set The SYSTEM MENU (Refer to Section 2-25), and select the “BP battery preset mode” (Menu No. 513). (Fig. E’)
2. Press the RESET (MENU SET) button to blink the voltage on the display window (Fig. F’).
3. Press the SHIFT button while pressing the ADVANCE button.
4. Note down the voltage on the display window.
5. Change the value by pressing the ADVANCE button, and move to the next digit with the SHIFT button (Fig. G’).
For your reference, the voltage increases by about 0.02 V when the right digit value is increased by one step.
6. Press the RESET (MENU SET) button. (The value set will be written in the EEPROM). “YES” will be displayed when the desired voltage is set (Fig. H’). “no” will be displayed when an error occurs while writing in the EEPROM and the value could not be set (Fig. I’). In this case, repeat steps 1 to 6.

Notes

- Set the voltage as 13.00 ± 0.01 V.
- The voltage value shown on the display window is for reference.
- If this menu is set by mistake, always press the MENU button to exit this menu. Never press the RESET (MENU SET) button. When pressing the RESET (MENU SET) button, the data being set will be written.
- If the value at step 4 was not taken down, change the value using the values at shipment on the previous page as reference.

Display window (LCD)



Blinking menu No. (When changed)



The voltage display blinking



A/D conversion value blinking display



Save OK



Save NG

2-21. Anton Bauer Operation

The following functions can be added to the DSR-1 series VTR by mounting the Anton Bauer gold mount QR-SP400A/DC-400A.

- **Automatic light system**

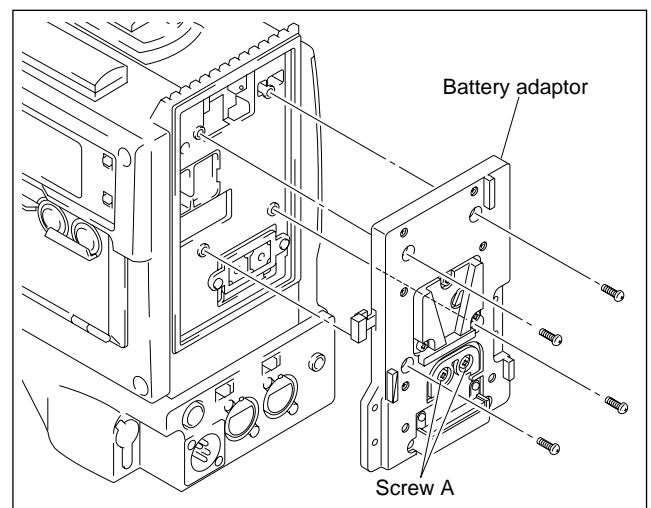
System which automatically lights up and turns off the Anton Bauer Ultralight according to the VTR recording start and stop timings of DSR-1/ 1P VTR.

- **Battery remainder display system**

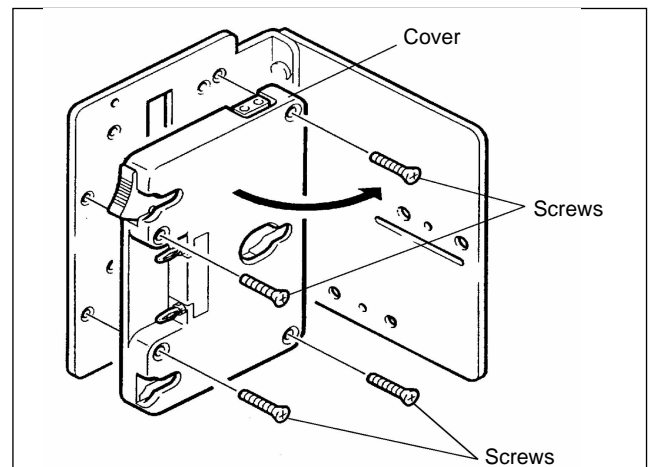
The Anton Bauer super magnum series battery is equipped with a battery remainder system. Battery remainder information is also output to the DSR-1/1P VTR via the gold mount. This information is displayed on the display window (LCD) of the VTR (DSR-1/1P) and inside the VF of the camera (DXC-30/D30P/637/ 637P and so on).

2-21-1. Mounting

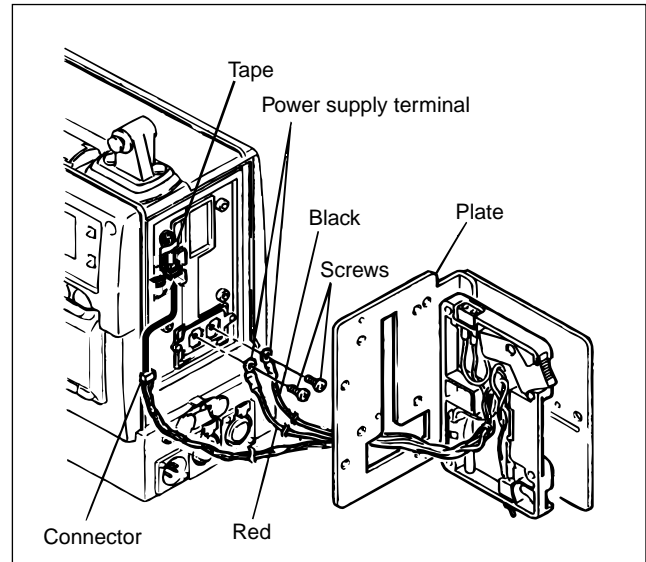
1. Remove the battery adaptor for BP-L60/L90 mounted on DSR-1/1P.



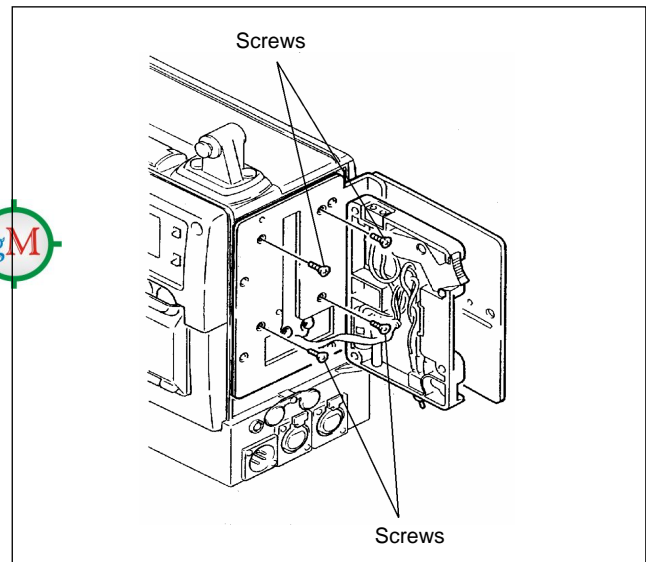
2. Remove the cover of the Anton Bauer gold mount.



3. Connect the harness (3 pin) of the DSR-1/1P VTR to the harness of the gold mount without removing the harness fixing tape, and keep the connector and extra harness inside the storage pocket.
Screw the power supply terminal of the gold mount onto the battery terminal of the VTR.
Pay special attention to the polarities.



4. Screw the plate of the gold mount onto the VTR.
Place back the cover onto the gold mount in the reverse order of 2.
Make sure the harness does not get caught for both steps.



2-21-2. Modification of VTR Settings

The modes that can be used for the Anton Bauer can be specified using the VTR menu of DSR-1/1P. Refer to Section 2-25 of this manual, operate menu No. 206 and set the display to “206 Antn”. This switches the display window (LCD) of the VTR (DSR-1/1P) and battery remaining display inside the VF of the camera (DXC-D30/D30P/637/637P and so on) to the remaining display information sent from the battery when the super magnum series battery is used.

2-21-3. Automatic Light System Operations

The DSR-1/1P VTR outputs the ultra light system ON/OFF control signal regardless of the settings of menu No.206. The ON signal is output before the actual start of recording and stops at the same time recording completes.

2-21-4. Battery Remaining Display

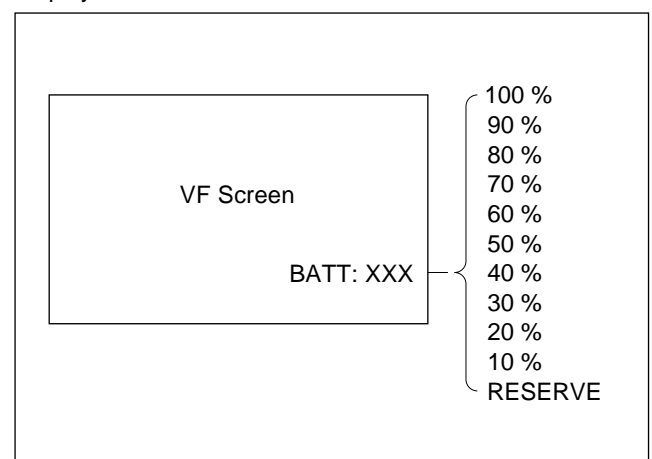
The super magnum series battery calculates the amount of electricity (stored) remaining in the battery while observing the charging and discharging conditions. The amount remaining will be displayed in %. The following is displayed on the display window (LCD) of the VTR (DSR-1/1P) and in the VF of the camera (DXC-D30/D30P/637/637P and so on).

- While the power supply is connected to the DC IN terminal, the original remaining amount will be displayed regardless of the settings of menu No.206.
- The battery before end state indicates that there is less than 10 % of battery remaining according to the remaining information from the super magnum series battery. At this time, the BATT on the display window (LCD) and dot at the most left side blink for 1 Hz.
- The battery end voltage will be the voltage set shown in 2-20 regardless of the setting of menu No.206. The BATT on the display window (LCD) blinks for 4 Hz.
- Messages from the VTR warning system (warning message: Center-top of VF screen. Refer to chapter 7 of instruction manual or section 1 of this manual) are displayed separately from the battery remaining information from the super magnum series battery.
- Displays at the bottom right of the VF screen. Displays constantly when the test signal (color bar) and camera status are displayed. Displays when the amount of battery remaining drops below 10 % for camera images.
- Anton Bauer, QR-SP400A/DC400A GOLD MOUNT, ULTRALIGHT SYSTEMS is the company name and registered trademark of Anton Bauer USA. This manual has been compiled with approval from Anton Bauer USA.
- Sony will not bear any responsibilities for Anton Bauer products. Contact Anton Bauer USA or an Anton Bauer dealer should you have any questions regarding their products.

Displays on VTR Section Display Window

BATT	E ■■■■■■	=	MAX
90% ≤ BATT	E ■■■■■□	<	MAX
70% ≤ BATT	E ■■■■□□	<	90%
50% ≤ BATT	E ■■■□□□	<	70%
30% ≤ BATT	E ■■□□□□	<	50%
EOD ≤ BATT	E ■□□□□□	<	30%
————— Blinks for 1 Hz when less than 10%			
————— Blinks for 4 Hz at battery end			

Displays Inside Camera Section VF



2-22. Disconnecting/connecting the Flexible Card Wires/Boards

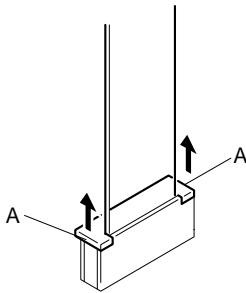
Notes

- Replace the flat cables, flexible card wires and boards as follows:
Three types of connectors are also used.
- In order to keep the flexible card wire and board longer life, be very careful not to bent them when handling because they are remarkably sensitive.

Vertical Type Connector

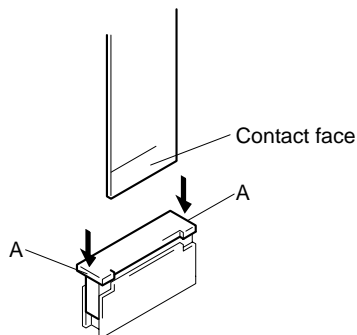
• Disconnecting

Slide the A section in the arrow direction, release the lock, and disconnect the flexible card wire/ board.



• Connecting

Lift up the A sections, and insert the flexible card wire/board in the connector while paying attention to the contacting surface of the flexible card wire/board. After fully inserting until it goes, push down the A sections to lock the flexible card wire/board.

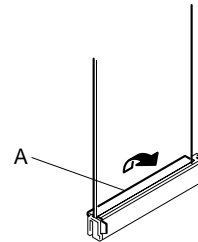


Note

When lifting up and down the * marked sections, be sure to hold both ends of connector.

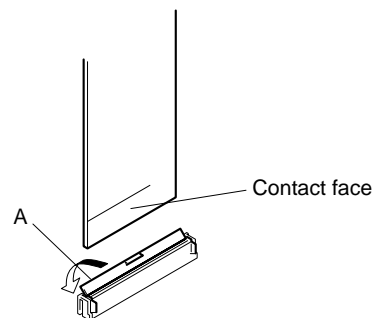
• Disconnecting

Open the A section in the arrow direction, release the lock, and disconnect the flexible card wire/board.



• Connecting

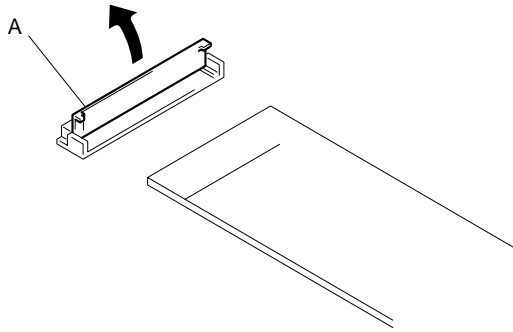
Lift up the A section, and insert the flexible card wire/board in the connector while paying attention to the contacting surface of the flexible card wire/board. After fully inserting until it goes, push down the A section to lock the flexible card wire/board.



Horizontal Type Connector

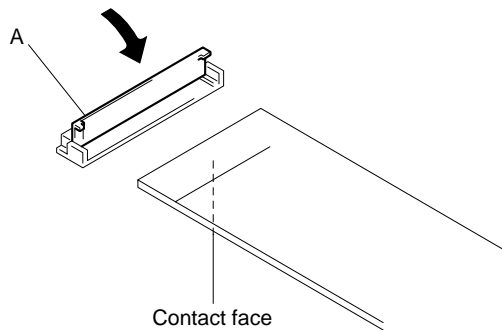
- Disconnecting

Open the A section in the arrow direction, release the lock, and disconnect the flexible card wire/board.



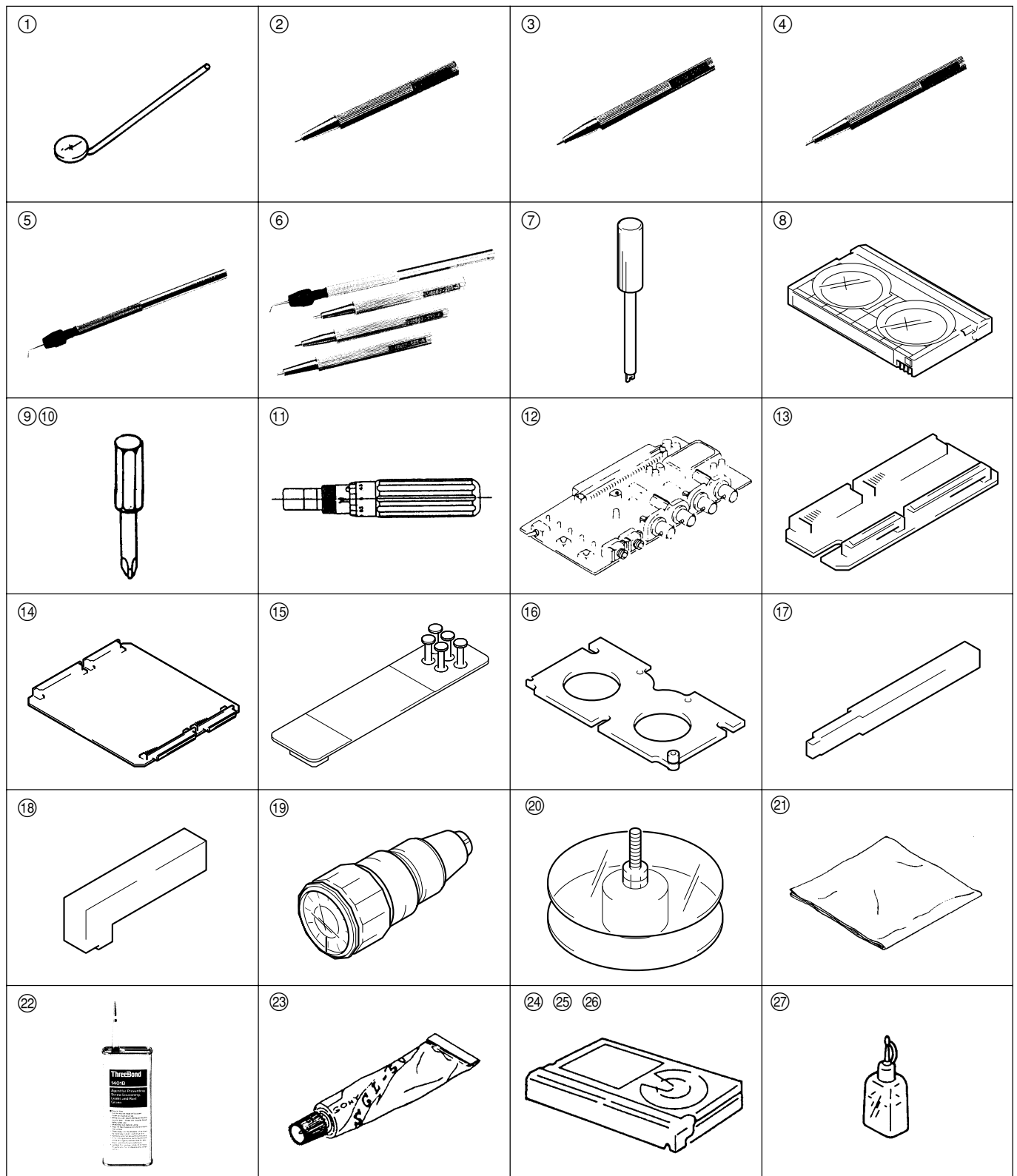
- Connecting

Lift up the A section, and insert the flexible card wire/board in the connector while paying attention to the contacting surface of the flexible card wire/board. After fully inserting until it goes, close the * marked section to lock the flexible card wire/board.



2-23. Service Tools and Test Fixtures

Fig No.	Part No.	Name	Usage
①	J-6080-029-A	Small adjustment mirror	Video tracking adjustment
②	J-6082-231-A	Washer attaching tool (For 1.5)	Parts replacement
③	J-6082-232-A	Washer attaching tool (For 1.2)	Parts replacement
④	J-6082-233-A	Washer attaching tool (For 0.8)	Parts replacement
⑤	J-6082-234-A	Washer removing tool A	Parts replacement
⑥	J-6082-236-A	Washer attaching/removing kit	Parts replacement (Set of No. 2 to No. 5)
⑦	J-6082-362-A	Tape guide adjusting screwdriver	Tape guide height adjustment
⑧	J-6082-373-A	Torque cassette	FWD/REV rewinding torque adjustment, FWD back tension adjustment
⑨	J-6325-110-A	Torque screwdriver bit (For M1.4)	Parts replacement
⑩	J-6325-380-A	Torque screwdriver bit (For M2)	Parts replacement
⑪	J-6325-400-A	Torque screwdriver (3 kg)	Tightening screw
⑫	J-6337-830-A	Camera tool, EW-783	Camera alternative tool (Analog)
⑬	J-6441-720-A	Extension board, DJ-172	SV-164/213 board adjustment
⑭	J-6441-740-A	Extension board, DJ-174	VA-172/172P/205B/205C board, IV-50 board, and IPM-66 board adjustment
⑮	J-6442-350-A	RF extension board	RF system adjustment, tape path system adjustment
⑯	J-6442-410-A	Reference plate	Reel table height adjustment, tape guide height adjustment reference plate
⑰	J-6442-420-A	Guide gauge	Tape guide height adjustment
⑱	J-6442-430-A	Reel table height check gauge	Reel table height adjustment
⑲	J-6442-510-A	Torque gauge (90ATG)	FWD/REV rewinding torque adjustment
㉔	J-6442-520-A	Rewinding torque measuring attachment	FWD/REV rewinding torque adjustment
㉔	3-184-527-01	Cleaning cloth	Cleaning
㉔	7-432-114-11	Three bond 1401B	Screw-locking compound
㉔	7-651-000-10	Grease SGL-601 (50 g)	Parts replacement
㉔	8-967-999-02	Alignment tape XH2-1AST	Tape path system adjustment
㉔	8-967-999-21	Alignment tape XH5-1A	Video system adjustment (for DSR-300A)
㉔	8-967-999-25	Alignment tape XH5-1AP	Video system adjustment (for DSR-300AP)
㉔	9-919-573-01	Cleaning liquid	Cleaning



2-24. Error Codes

This unit is provided with a function to display error codes when problems occur.

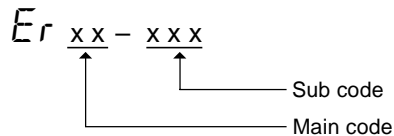
When errors are detected in the normal operation state, error codes are displayed on the display window (LCD) at the side of the unit immediately.

- The error display of the sensor system (main code 3X) goes off when the error is solved.
- The error display of the communication error between the microcomputer and peripheral devices (main code 91) goes off when the error is corrected.
- The error display of the reel position motor (main mode 21) goes off when normal in the next operation.
- Other errors remain displayed until the power is turned OFF.

When an error occurs, protection operations are carried out according to the mode.

Errors are displayed in error codes. The contents of the displayed error codes are as follows.

Error code display



1. Main code

The causes of errors can be broadly classified as follows.

- Er 0x* : Servo system, tape path system error
Er 21 : Reel position motor, reel transfer mechanism periphery error
Er 3x : Sensor system error
Er 91 : Microcomputer and its periphery device error
Er 92, Er 93 : Reference signal detection error
Er 95 : Communication error between the microcomputer and video or audio signal processing devices.

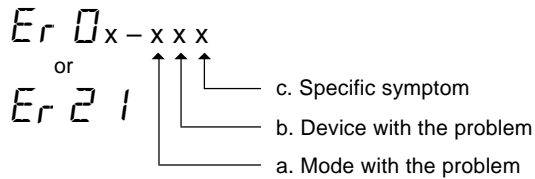
2. Sub Code

For items which require more information than that shown by the main code, the causes of errors are provided in more detail using sub codes.

If information is sufficient with the main code, sub code 000 is displayed.

2-24-1. Servo System, Tape Path System, Reel Mechanism, and Sensor System Error

Error code display



- a. Mode with the problem
 - 0 : The mode cannot be identified, or there is no need to identify the mode
 - 1 : CASSETTE IN
 - 2 : THREADING
 - 5 : SEARCH, F.FWD/REW
 - 6 : PLAY/REC
 - 8 : UNTHREADING
- b. Device with the problem
 - 0 : The device cannot be identified, or there is no need to identify the device
 - 2 : Function cam motor/cam position sensor
 - 3 : Drum motor/drum FG
 - 4 : Capstan motor/capstan FG
 - 5 : S side reel FG
 - 7 : T side reel FG
 - 9 : Both S/T side reel FGs or reel motor
 - C : Reel position motor/reel position sensor
- c. Specific symptoms
 - 0 : There is no need to identify the symptom
 - 1 : The operation did not complete within the designated time
 - 2 : Detected speed error
 - 3 : Detected tape slack
 - 4 : Could not detect FG
 - 8 : Detected abnormal current

Error Codes (Er02-Er33)

Error code	Details	Error detection method	Operations when errors occur	Test mode for checking/Possible failures
Er02-098	Detected abnormal current of reel motor.	The mechanism control MICRO COM. could not detect S reel FG (SE-297 board/PH1) T reel FG (SE-297 board/PH2) output, or detected abnormal current of the reel motor. * MICRO COM. means the microcomputer.	When errors occur, SHUT OFF operations are performed, and only the EJECT mode is accepted.	Test mode Capstan test mode 610
Er02-503	Detected tape slack during SEARCH, F.FWD/REW.			Reel test mode 611
Er02-554	Could not detect the S reel FG output during SEARCH, F.FWD/REW.			Possible causes • The tape is cut or jammed. • The reel torque cannot be adjusted
Er02-574	Could not detect the T reel FG output during SEARCH, F.FWD/REW.			• Faulty operations of the capstan motor or drive circuit (SV-164/213 board/IC300)
Er02-594	Could not detect the S/T reel FG output during SEARCH, F.FWD/REW.			• Faulty operations of the pinch roller block.
Er02-603	Detected tape slack during PLAY/REC.			• Faulty operations of the brake
Er02-654	Could not detect S reel FG output during PLAY/REC.			• Reel FG system circuit (SV-164/213 board/IC2, IC3, IC6) problems
Er02-674	Could not detect T reel FG output during PLAY/REC.			• Faulty operations of reel brake
Er02-694	Could not detect S/T reel FG output during PLAY/REC.			• Disconnection or faulty connection of flexible board (SE-297 board)
Er02-874	Could not detect the T reel FG output during unthreading.		When errors occur, SHUT OFF operations are performed. EJECT mode cannot be accepted.	• Problems or faulty disconnection of reel motor • Faulty operations of reel table, etc.
Er07-042	Detected capstan speed problem.	The mechanism control MICRO COM. could not detect CAPSTAN FG output or detected speed problem.	When errors occur, SHUT OFF operations are performed, and only the EJECT mode is accepted.	Test mode Capstan test mode 610 Possible causes • Capstan free speed adjustment (capstan FG duty ratio adjustment) problems • Faulty operations of capstan motor or drive circuit (SV-164/213 board/IC300) • Capstan FG system circuit (SV-164/213 board/IC301, IC302) problems • Disconnection or faulty connection of flexible board connecting capstan motor
Er08-032	Cannot recover from drum speed problem.	The mechanism control MICRO COM. could not detect drum motor FG output or detected speed problem.	When errors occur, SHUT OFF operations are performed, and only the EJECT mode is accepted.	Test mode Drum test mode 612 Possible causes • Drum free speed adjustment (drum FG duty ratio adjustment) problems • Faulty operations of drum motor or drive circuit (SV-164/213 board/IC400) • Drum FG system circuit (SV-164/213 board/IC401, IC402) problems • Disconnection or faulty connection of flexible board connected to the drum

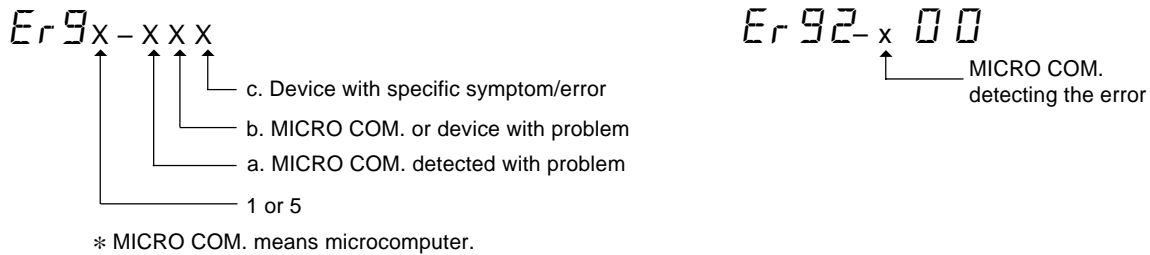
Error code	Details	Error detection method	Operations when errors occur	Test mode for checking/Possible failures
<i>Er09-021</i>	Pinch roller ON/OFF did not complete within the set time.	The mechanism control MICRO COM. could not obtain an appropriate input signal from the cam position sensor or detected abnormal current of the function cam (LD) motor.	SHUT OFF operations are performed, and only the EJECT mode is accepted.	Test mode Function cam test mode 613 Possible causes
<i>Er09-028</i>	Detected abnormal current of the function cam (LD) motor.			<ul style="list-style-type: none"> Faulty operations of the reel brake Faulty operations of the function cam (LD) motor or drive circuit (SV-164/213 board/IC201)
<i>Er09-221</i>	Threading did not complete within the set time.			
<i>Er09-821</i>	Unthreading did not complete within the set time.			<ul style="list-style-type: none"> Incorrect gear position of the threading mechanism or function cam Cam mode sensor (SE-295 board/PH1 to PH4) or detection circuit (SV-164/213 board/Q803, Q804) problems Disconnection, faulty connection of the flexible board (SE-295 board) Disconnection of the harness
<i>Er21-1C1</i>	Reel position movement did not complete within the set time.	The mechanism control MICRO COM. could not obtain an appropriate input signal from the reel position sensor or detected abnormal current of the reel position motor.	The error is displayed until the cassette is inserted at the next time.	Possible causes <ul style="list-style-type: none"> Faulty operations of the reel position (shift) motor Faulty operations of the reel table movement mechanism Faulty detection of the reel position sensor (SE-297 board/PH3, PH4) or faulty detection circuit (SV-164/213 board/Q805) Disconnection or faulty connection of the flexible board (SE-297, MT-114)
<i>Er31-000</i>	Tape top could not be released.	The detection signal (detected tape top or tape end after SHORT FF or SHORT REW) was input to the mechanism control MICRO COM. from the tape top sensor or tape end sensor.	When errors occur, the STOP mode is set. Only the PLAY, FF, and EJECT modes are accepted. The error is displayed until it is corrected.	Possible causes <ul style="list-style-type: none"> Faulty tape top sensor (CC-68 board/Q1)/tape end sensor (SE-295 board/Q1) or detection circuit (SV-164/213 board/IC3)
<i>Er32-000</i>	Tape end could not be released.		When errors occur, the STOP mode is set. Only the REW and EJECT modes are accepted. The error is displayed until it is corrected.	<ul style="list-style-type: none"> Disconnection or faulty connection of the flexible board (SE-295, MT-114, CC-68)
<i>Er33-000</i>	Reel position sensor detected STANDARD and MINI at the same time.	Both the detections signals from the L reel position sensor and S reel position sensor were input to the mechanism control MICRO COM.	The error is displayed until it is corrected.	Possible causes <ul style="list-style-type: none"> Faulty L reel position sensor (SE-297 board/PH3)/S reel position sensor (SE-297 board/PH4) Disconnection or faulty connection of the flexible board Faulty detection circuit (SV-164/213 board/Q805)

Notes

- For errors of the servo system and tape path system, basic operations can be checked in the test mode.
- The “Possible failures” above are only for the main problem area.
- Regarding the test mode, refer to section “2-25. Menu.”

2-24-2. Communication Error of Microcomputer and Peripheral Devices

Error code display



Note

For Er91 and Er95, the device (EEPROM, IC) or the digital video signal bus from camera with the problem shows the error using sub codes b and c.

- a. MICRO COM. detected with problem
 - 1 : System control (SY) MICRO COM. <FP-81 board IC001>
 - 2 : LCD and time code control (KY) MICRO COM. <FP-81 board IC200>
 - 4 : Mechanism control (SV) MICRO COM. <SV-164/213 board IC500>
 - 7 : Signal processor control (SP) MICRO COM. <VA-172/172P/205B/205C board IC651>
 - F : Index picture control (IP) MICRO COM. <IPM-66 board IC103>
- b. MICRO COM. or device with problem
 - 1 : System control (SY) MICRO COM.
 - 2 : LCD and time code control (KY) MICRO COM.
 - 3 : EEPROM
 - 4 : Mechanism control (SV) MICRO COM.
 - 7 : Signal processor control (SP) MICRO COM.
 - 8 : Time code IC
 - F : Index picture control (IP) MICRO COM.
- c. Specific Symptom
 - 3 : Parity error
 - 5 : Communication not possible



Table of Error Codes (E-91-E-95)

Error codes	Contents
E-91-123	Communication (parity) error of data from the LCD/time code control (KY) MICRO COM. to the system control (SY) MICRO COM..
E-91-125	Communication is impossible from the LCD/time code control (KY) MICRO COM. to the system control (SV) MICRO COM.. Clock (SCLK) is not input from the LCD/time code control (KY) MICRO COM.. A communication is not completed within a specified time.
E-91-131	Error of the EEPROM controlled from the system control MICRO COM. (SY). Impossible to read/write with the EEPROM (VA-172/172P/205B/205C board/IC401).
E-91-13F	Read/write error from the system control (SY) MICRO COM. to the cassette memory. Error was detected when reading/writing from the cassette memory terminal (SE-298/MIC connector) to the cassette memory.
E-91-143	Communication (parity) error of data from the mechanism control (SV) MICRO COM. to the system control (SY) MICRO COM..
E-91-173	Communication (parity) error of data from the signal processor control (SP) MICRO COM. to the system control (SY) MICRO COM..
E-91-1F3	Communication (parity) error of data from the index picture (IP) MICRO COM. to the system control (SY) MICRO COM..
E-91-1F5	Communication is impossible between the system control (SY) MICRO COM. and the index picture (IP) MICRO COM.. Clock (SCLK) is not input from the index picture (IP) MICRO COM.. A communication is not completed within a specified time.
E-91-213	Communication (parity) error of data from the system control (SY) MICRO COM. to the LCD/time code control (KY) MICRO COM..
E-91-215	Communication is impossible from the system control (SY) MICRO COM. to the LCD/time code control (KY) MICRO COM.. A communication is not completed within a specified time.
E-91-232	Error of the EEPROM controlled from the LCD/time code control (KY) MICRO COM. (SY). Read/write with the EEPROM (FP-81 board/IC204) is impossible.
E-91-285	Communication error from the time code IC (FP-81 board/IC201) to the LCD/time code control (KY) MICRO COM..
E-91-413	Communication (parity) error of data from the system control (SY) MICRO COM. to the mechanism control (SV) MICRO COM..
E-91-415	Communication is impossible between the mechanism control (SV) MICRO COM. and the system control (SY) MICRO COM.. Clock (SCLK) is not input from the system control (SY) MICRO COM.. A communication is not completed within a specified time.
E-91-433	Error of the EEPROM controlled from the mechanism control (SV) MICRO COM.. Impossible to read/write with the EEPROM (HN-227 board/IC1).
E-91-434	Error of the EEPROM controlled from the mechanism control (SV) MICRO COM.. Impossible to read/write with the EEPROM (RP-91 board/IC770).
E-91-473	Communication (parity) error of data from the signal processor control (SP) MICRO COM. to the mechanism control (SV) MICRO COM..
E-91-475	Communication is impossible between the mechanism control (SV) MICRO COM. and the signal processor control (SP) MICRO COM.. Clock (SCLK) is not input from the signal processor control (SP) MICRO COM.. A communication is not completed within a specified time.
E-91-743	Communication (parity) error of data from the mechanism control (SV) MICRO COM. to the signal processor control (SP) MICRO COM..
E-91-F13	Communication (parity) error of data from the system control (SY) MICRO COM. to the index picture (IP) MICRO COM..

Error codes	Contents
Er92-100	The system control (SY) MICRO COM. cannot detect 1/2 VD signal (SV-164/213 board/IC500) or SVTRKD signal (SV-164/213 board/IC500) from the mechanism control (SV) MICRO COM..
Er92-200	The display/time code control MICRO COM. cannot detect 1/2 VD signal.
Er92-F00	The index picture (IP) MICRO COM. cannot detect 1/2 VD signal or SVTRKD signal.
Er93-000	The mechanism control (SV) MICRO COM. cannot detect FLTD signal (VA-172/172P/205B/205C board/IC611) from the VA-172/172P/205B/205C board.
Er95-100	Communication (parity) error of data from the AUX IC (VA-172/172P/205B/205C board/IC672) to the system control (SY) MICRO COM..
Er95-101	Communication (parity) error of data from the FSCONT IC (VA-172/172P/205B/205C board/IC725) to the system control (SY) MICRO COM..
Er95-102	Communication (parity) error of data from the NFIL IC (VA-172/172P/205B/205C board/IC405) to the system control (SY) MICRO COM..
Er95-120	CF pulse is not input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-121	Error of digital data (0) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-122	Error of digital data (1) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-123	Error of digital data (2) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-124	Error of digital data (3) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-125	Error of digital data (4) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-126	Error of digital data (5) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-127	Error of digital data (6) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-128	Error of digital data (7) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-129	Error of digital data (8) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-12A	Error of digital data (9) input from the digital camera to the NFL IC (VA-172/172P/205B/205C board/IC405).
Er95-403	Communication (parity) error of data from the SFY IC (VA-172/172P/205B/205C board/IC671) to the the mechanism control (SV) MICRO COM..
Er95-405	Communication (parity) error of data from the CHCD IC (RP-91 board/IC774) to the mechanism control (SV) MICRO COM..
Er95-703	Communication (parity) error of data from the SFY IC (VA-172/172P/205B/205C board/IC671) to the signal processor control (SP) MICRO COM..
Er95-704	Communication (parity) error of data from the AUDIO CORE (VA-172/172P/205B/205C board/IC711) to the signal processor control (SP) MICRO COM..
Er95-F10	Communication (parity) error of data from the IP IC (IPM-66 board/IC101) to the index picture (IP) MICRO COM..
Er95-F11	Write processing error from the IP IC (IPM-66 board/IC101) to the memory (IPM-66 board/IC102).
Er95-F12	Write processing error from the frame memory (IPM-66 board/IC201 to IC214, IC301 to IC314) to a tape controlled by IP IC (IPM-66 board/IC101).

Operations when Error Occur

When a communication error and communication not possible (Error 91 to Error 95) occur, only an error display appears and the unit does not stop its operation.

Possible failure

- Microprocessor or device
- Destination IC of the microprocessor
- Connection between board to board or connector

Note

Digital data (0) to digital data (9) shown Er95-120 through Er95-12A indicate numbers of the digital video data bus. Error occurs when data is not input to the NFIL IC or is not read correctly.

2-25. Menu

The display window (LCD) of this unit enables setting of the system functions of this unit, and VTR menus required for adjustments and maintenance.
The VTR menus are divided into the following three.

- USER MENU
For user operations.
- SYSTEM MENU
Used to set various system functions of this unit (This menu is not described in the instruction manual and therefore cannot be used by users.)
- MAINTENANCE MENU
Used for performing maintenance including adjustments.

2-25-1. USER MENU

Operating the USER MENU

1. Press the MENU button in the TC panel.
(The time data display on the display window changes to the menu display.)

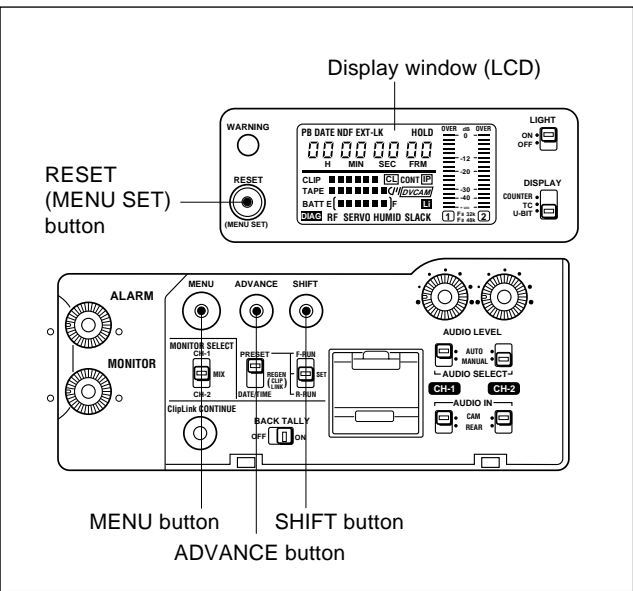
The display window (LCD) displays “101 xxxx” and the USER MENU is set. (Fig. A.)

2. Press the ADVANCE button repeatedly until the Menu No. on the display window (LCD) becomes the desired Menu No.. Pressing the ADVANCE button (+button) will switch and display the menu in the following order.
101 → 201 → 204 (DSR-1)/206 (DSR-1P)→215 (DSR-1)/214 (DSR-1P) → 101...
3. To display the desired Menu No., press the SHIFT button. The current value set will blink, enabling the value to be changed. (Fig. B.)
4. To advance to the next digit, press the SHIFT button. To change the set value, press the ADVANCE button and display the desired value.
5. Press the RESET (MENU SET) button.
The set value is registered, and the Menu No. blinks again. (Fig. C.)
6. Press the MENU button.
The display window (LCD) returns to the state before the menu display.

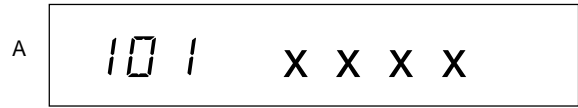
Note
If the MENU button is pressed during operations, the menu will be exited without registering changes made in the settings.

<Basic Operations of Buttons>

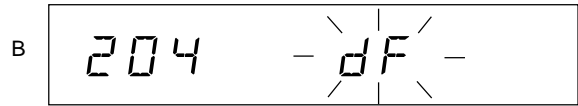
Button	Function
ADVANCE button	Changes the set value Menu No. + (Increase)
SHIFT button	Moves between displayed digits Menu No. – (Decrease)
RESET (MENU SET) button	Registers the set value (Returns to the menu selection mode) Start the adjustment
MENU button	Returns to the state before the menu Interrupt the adjustment



Display window (LCD)



Initial display



Blinks when the set value is changeable



Blinking Menu No. (When changed)

is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW(LCD)/ FACTORY SETTING	BUTTON USED	CONTENTS
101	_____	10 1 2000	ADV. SHIFT	Sets the calendar and clock. Use the SHIFT button to move between the digits to be set. (Year → Month → Day → X0 Hours → 0X Hours → X0 Minutes → 0X Minutes → X0 Seconds → 0X Seconds → Year)
201	HOURS METER	20 1 X X X X	SHIFT	Displays how long the head drum was used, how long the tape was driven, and operating time in order. A : How long the head drum was used b : How long the tape was driven C : Operating time (When power is turned ON) • Each time Menu No. 201 is displayed and the SHIFT button is pressed, the display changes in the following order.
204	FRAME MODE SELECTION <For DSR-1 (UC)>	204 dF dF /ndF	ADV.	Selects the time code generator drop frame mode and non-drop frame mode dF : Drop frame mode ndF : Non drop frame mode
206	BATTERY REMAINDER DISPLAY SELECTION	206 Std LI/Antn/ Std	ADV.	Sets/switches the battery remainder display. LI : Lithium ion battery (BP-L60/L90) Anton : Anton battery Std : Standard battery display (NP-7B, BP-90A)
207	STANDBY TIMER SETTING	207 08 01/03/05/ 08	ADV.	Sets the time for releasing the standby mode. Can be selected from one minute, 3 minutes, 5 minutes, and 8 minutes.
210	AUTO CHECK FUNCTION SETTING	210 oFF oFF /on	ADV.	Automatically inspects if there are any problems in the basic operations of this unit, connections between this unit and the camera before starting photographing. When OFF is displayed : When the RESET button is pressed, auto check is not performed, and instead, Menu No. is displayed again. When on is displayed : When the RESET button is pressed, auto check is started. After auto check completes, press the MENU button to exit from the menu mode.
211	CLIP LINK FUNCTION SETTING	211 on on /oFF	ADV.	Setting when the clip link photographing is not executed. on : Clip link function ON OFF : Clip link function OFF
212	AUDIO RECORDING MODE SETTING	212 48 48 /32	ADV.	Sets audio signal recording mode 48 : 48 kHz 2 channel mode 32 : 32 kHz 4 channel mode (Records CH-1, CH-2 only)

- For details of the USER MENU, refer to the Instruction Manual or Section 1.
- Buttons used : RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

☐ is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW(LCD)/ FACTORY SETTING	BUTTON USED	CONTENTS
213	AUDIO REFERENCE LEVEL SELECTION	<div>213 -20</div> -20 (DSR-1), -18 (DSR-1P)/-12	ADV.	Selects the audio reference level. -20 : -20 dB (DSR-1) -18 : -18 dB (DSR-1P) -12 : -12 dB
214	AUDIO FADE SELECTION	<div>214 oFF</div> on/ <input type="checkbox"/> oFF	ADV.	Select the fade in/fade output mode at the starting and ending points of audio recording. on : Fades in/out. oFF : No fades in/out.
220	SETUP ADD SELECTION For DSR-1 (UC)	<div>220 oFF</div> on/ <input type="checkbox"/> oFF	ADV.	Set when adding setup to the video signal during playback.
221	SETUP REMOVE SETTING For DSR-1 (UC)	<div>221 oFF</div> <input type="checkbox"/> on / oFF	ADV.	Set when removing setup from the video signal added with setup during recording.

- For details of the USER MENU, refer to the Instruction Manual or Section 1.
- Buttons used : RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

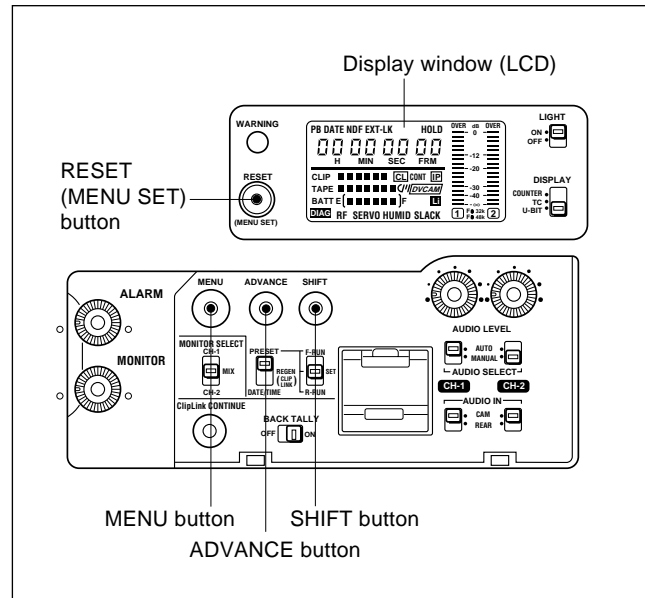
<Basic Operations of Buttons>

Button	Function
ADVANCE button	Changes the set value Menu No. + (Increase)
SHIFT button	Moves between displayed digits
RESET (MENU SET) button	Registers the set value (Returns to the menu selection mode)
MENU button	Returns to the state before the menu mode

2-25-2. SYSTEM MENU

Operating the SYSTEM MENU

1. Press the MENU button while pressing the SHIFT button in the TC panel. “101 xxxx” is displayed on the display window (LCD). (Fig. A.)
Release the SHIFT button while pressing the MENU button.



2. After about 1 second, check that “600 oFF” is displayed, and release the MENU button. (Fig. B.)
3. Press the ADVANCE button or SHIFT button repeatedly until the Menu No. on the display window (LCD) becomes the desired Menu No..

Pressing the ADVANCE button (+ button) will switch and display the menu in the following order.

600 → 308 → 401 → 402...513 → 600...

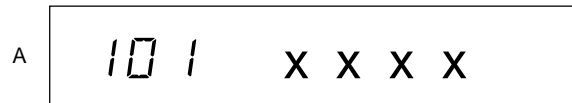
Pressing the SHIFT (– button) will switch and display the menu in the following order.

600 → 513 → 509 → 503...308 → 600...

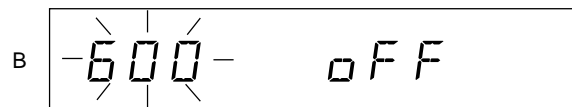
4. Display the desired Menu No., press the RESET (MENU SET) button.
The current value set will blink, enabling the value to be changed. (Fig. C.)
5. Press the ADVANCE button and display the desired value.
6. Press the RESET (MENU SET) button. The set value is registered, and by pressing the RESET (MENU SET) button, the Menu No. blinks again. (Fig. D.)
7. Press the MENU button.

The display window (LCD) returns to the state before the menu display.

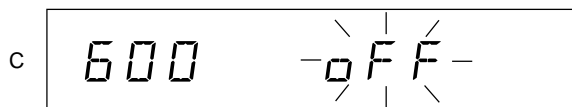
Display window (LCD)



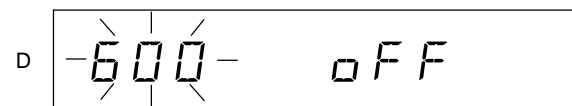
Initial display



Blinking Menu No. (When changed)



Blinks when the set value is changeable



Blinking Menu No. (When changed) again

☐ is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW(LCD)/ FACTORY SETTING	BUTTON USED	CONTENTS
308	TC PHASE CORRECTION ON/OFF SELECT	<div>308 on</div> <div>on/ OFF</div>	ADV.	Selects whether to perform phase correction or not. ON : TC bit 0 starts from Low. OFF : TC bit 0 start is undefined. Normally set to ON.
401	BACK TALLY MODE SELECT	<div>401 OFF</div> <div>on/ OFF</div>	ADV.	Selects BACK TALLY mode. ON : Real REC mode OFF : REC mode and WARNING display
402	HUMID MODE SELECT	<div>402 OFF</div> <div>on/ OFF</div>	ADV.	ON : Even if condensation occurs, REC operation is continued if VTR is set to REC mode. At other times, same as OFF. OFF : When condensation occurs, HUMID ALARM is displayed to protect the tape. VTR stops operating only for a certain period of time when set by HUMID TIMER. (Refer to 2-12 for details.)
403	ROM VERSION DOSPLAY	<div>40354 X X X</div>	RESET	When the RESET button is pressed, the subject switches accordingly in the order KYÆSYÆSVÆSPÆIPÆKY and the ROM version is displayed. (SP displays 0.00 only) Example on the left : For SY microcomputer
405	STANDBY OFF INHIBIT ON/OFF	<div>405 OFF</div> <div>on/ OFF</div>	ADV.	Selects whether to perform STANDBY OFF operation or not. ON : STANDBY OFF operation is prohibited. Therefore STANDBY OFF is not performed. OFF : STANDBY OFF is performed at the time set by the STANDBY TIMER.
406	PB TC OUT SELECT	<div>406 OFF</div> <div>on/ OFF</div>	ADV.	Selects PB TC OUT. ON: PB TC is output during playback. OFF: PB TC is not output. (Generator processed TC is output at all times.)
501	BATTERY BEFORE	<div>501 X X X</div>	ADV. SHIFT RESET	The battery before end (near end of battery life) voltage can be set within the 11.0V to 12.5V range. (Refer to 2-20 for the changing method.)
502	BATTERY END	<div>502 X X X</div>	ADV. SHIFT RESET	The battery end (end of battery life) can be set within the 11.0V to 12.5V range. (Refer to 2-20 for the changing method.)

Buttons used : RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

Note

Even if Menu No. 600 is “on”, it will automatically go “oFF” when the power is turned OFF.

☐ is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW(LCD)/ FACTORY SETTING	BUTTON USED	CONTENTS
503	CALENDAR DISPLAYS	<div>503 X X X</div> <div><input type="checkbox"/> Std /UC/J/CE</div>	ADV.	Display window (LCD) date display switching (TC mode switch 1/TC panel is the setting format of U-BIT during DATE/TIME) Std : According to internal DIP SW (NTSC is UC/J, PAL is CE only) J : Year/month/day UC : Month/day/year CE : Date/month/year
509	HUMID TIMER OFF	<div>509 X X X</div>	RESET	Releases HUMID TIMER When set to HUMID MODE OFF at factory setting Menu No. 402, HUMID ALARM is displayed to protect the tape, and VTR stops operations only for a certain period of time when set by the HUMID TIMER when condensation occurs. However, when condensation is removed manually, the HUMID TIMER can be released at the menu. (For details on how to release the HUMID TIMER, refer to 2-12.) Note If condensation has occurred, the HUMID TIMER cannot be released.
513	BP BATTERY PRESET	<div>513 X X X</div>	ADV. SHIFT RESET	The BP battery preset voltage can be set in the 12.0 to 15.9 V range. (Refer to 2-20. for how to replace.)
600	MAINTENANCE MENU ON/OFF SELECT	<div>600 oFF</div> <div>on/ <input type="checkbox"/> oFF</div>	ADV.	Sets the MAINTENANCE MENU (menu No. 601 to 755) ON/ OFF. ON: MAINTENANCE MENU are displayed. OFF: MAINTENANCE MENU are not displayed.

Buttons used : RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

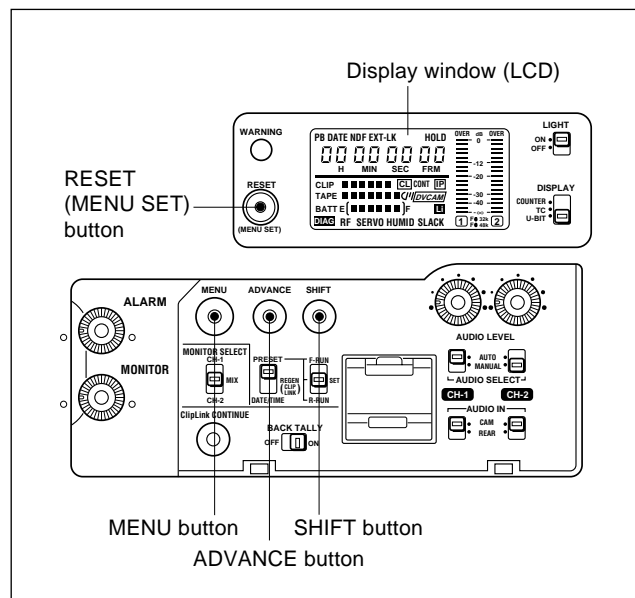
<Basic Operations of Buttons>

Button	Function
ADVANCE button	Changes the set value Menu No. + (Increase)
SHIFT button	Moves between displayed digits Menu No. – (Decrease)
RESET (MENU SET) button	Registers the set value (Returns to the menu selection mode) Start the adjustment
MENU button	Returns to the state before the menu mode Interrupt the adjustment

2-25-3. MAINTENANCE MENU

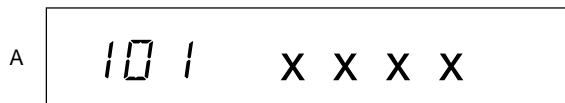
Operating the MAINTENANCE MENU

1. Press the MENU button while pressing the SHIFT button in the TC panel. Release the SHIFT button while pressing the MENU button.
<The display window (LCD) displays “101 xxxx”. (Fig. A.)>

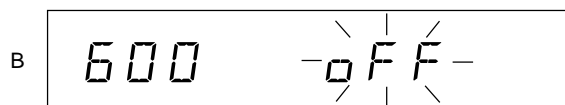


2. Check that “600 oFF” is displayed one second later, and release the MENU button.
3. Press the RESET (MENU SET) button with Menu No. 600 displayed. (“oFF” blinks.) (Fig. B.)
4. Press the ADVANCE button and select “on”. (Fig. C.)
5. Press the RESET button. (“600” blinks.) (Fig. D.)
This enables the MAINTENANCE MENU (Menu No. 600 to 755) to be set.
* Even if Menu No. 600 is set to “on”, the SYSTEM SETTING MENU can be displayed and settings can be changed.
6. Press the ADVANCE button or SHIFT button repeatedly until the Menu No. on the display window (LCD) becomes the desired Menu No.
Pressing the ADVANCE button (+button) will switch and display the menu in the following order.
600 → 601 → 603 → 604...513 → 600...
Pressing the SHIFT (− button) will switch and display the menu in the following order.
600 → 513 → 509 → 503...601 → 600...
7. Press the RESET (MENU SET) button at the desired setting, and perform settings and adjustments at each menu.
8. Press the MENU button.
The display window (LCD) returns to the state before the menu display.

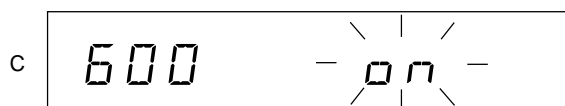
Display window (LCD)



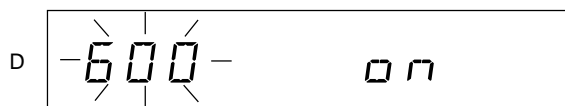
Initial display



Before the set value is changed



After the set value is changed



Blinks (with the set value is changed) at the MAINTENANCE MENU

Note

When the MENU button is pressed before results are displayed (during adjustments) for Menus No. 601, 605, 607, 608, and 609, “Abort” will be displayed and the adjustments stopped. This is displayed until normal operations can be performed (2 seconds at the shortest).

☐ is the factory setting

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW(LCD)/ FACTORY SETTING	BUTTON USED	CONTENTS
601	CAPSTAN FG DUTY ADJUSTMENT	<div>601 - - - -</div> <div>(Adjusting)</div>	RESET	When the RESET (MENU SET) buttons is pressed, capstan FG DUTY automatic adjustment is started. After the adjustment, data is written in the EEPROM, and the adjustment results are displayed on the display window (LCD) (YES or no). (For details, refer to Section 9. Servo System Alignments).
603	SLACK MUTE SETTING	<div>603 OFF</div> <div>on/ <input type="checkbox"/>OFF</div>	ADV.	Sets slack detection mute ON/OFF. ON : Slack mute ON OFF : Slack mute OFF Press the RESET (MENU SET) button, and set slack mute ON/OFF using the ADVANCE button. Note This setting is effective only while the power is ON. When the power is turned OFF, it is automatically turned OFF.
604	TRACKING ADJUSTMENT CENTER ITI MODE SELECTION	<div>604 OFF</div> <div><input type="checkbox"/>OFF /10/5/20</div>	ADV.	Selects single frequency during recording/playback and recording in the center ITI mode. OFF when the normal recording/playback mode is set. 5 : Single frequency is 5 MHz during recording 10 : Single frequency is 10 MHz during recording 20 : Single frequency is 20 MHz during recording Note This setting is effective only while the power is ON. When the power is turned OFF, it is automatically turned OFF.
605	SWITCHING POSITION ADJUSTMENT	<div>605 - - - -</div> <div>(Adjusting)</div>	RESET	Performs automatic adjustments of the switching position. (For details, refer to Section 5. Tape Path Alignment.)
606	PLAYBACK MODE SELECTION	<div>606 Aut</div> <div><input type="checkbox"/>Aut /10/15</div>	ADV.	Selects playback mode. Aut: Data is detected and mode is automatically determined. 10 : Fixed at SP mode. 15 : Fixed at SSP mode.
607	REEL FG DUTY ADJUSTMENT	<div>60x - - - -</div> <div>(Adjusting)</div>	RESET	Automatically adjusts the reel FG DUTY. YES : Adjustment OK no : Adjustment NG (For details, refer to Section 9. Servo System Alignments.)
608	REEL TORQUE ADJUSTMENT 1		STOP F.FWD REW EJECT	Adjusts the reel torque. YES : Ends after saving adjustment data. no : Adjustment NG and error cause (For details, refer to 4-36.)
609	REEL TORQUE ADJUSTMENT 2			Adjusts the reel torque. YES : Ends after saving adjustment data. no : Adjustment NG and error cause (For details, refer to 4-36.)

Buttons used : RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

For basic operation of buttons, refer to the beginning of 2-25. Menu.

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW(LCD)/ FACTORY SETTING	BUTTON USED	CONTENTS
610	CAPSTAN TEST MODE	<div>6 1 x - -</div> (During test mode)	RESET	Rotates the capstan at the fixed voltage.
611	REEL TEST MODE			Rotates the reel at the fixed voltage.
612	DRUM TEST MODE			Rotates the drum at the fixed voltage.
613	FUNCTION CAM TEST MODE		STOP EJECT	While the following buttons are pressed, performs threading/unthreading. STOP button : Performs threading. EJECT button : Performs unthreading.
620	ENCODER Y SYNC LEVEL ADJUSTMENT	<div>X X X X X</div> (When changing data)		For details, refer to Section 7. Electrical Alignment After Replacement Boards. If "no" is displayed when the RESET button is pressed, it means that the data was not saved properly.
621	ENCODER Y LEVEL ADJUSTMENT			
622	ENCODER CHROMA LEVEL ADJUSTMENT 1	<div>X X X n o</div> (Save NG)		
623	D/A R-Y OUTPUT LEVEL ADJUSTMENT			
624	ENCODER BURST LEVEL ADJUSTMENT 1			
625	ENCODER CHROMA LEVEL ADJUSTMENT 2			
626	ENCODER BURST LEVEL ADJUSTMENT 2			
627	VIDEO CHROMA MIX LEVEL ADJUSTMENT			

Buttons used : RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

For basic operation of buttons, refer to the beginning of 2-25. Menu.

Notes

- Menus No. 632 to 637 can be used only when the analog video signal from 50P is input.
- Menus No. 640 to 651 can be used only when the digital video signal from 76P is input.

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW(LCD)/ FACTORY SETTING	BUTTON USED	CONTENTS
628	VIDEO Y MIX LEVEL ADJUSTMENT	<div>X X X X X</div>	ADV. SHIFT RESET	For details, refer to Section 7. Electrical Alignment After Replacement Boards. If “no” is displayed when the RESET button is pressed, it means that the data was not saved properly.
629	PB VIDEO PHASE ADJUSTMENT	(During test mode)		
630	PB SYNC PHASE ADJUSTMENT	<div>X X X no</div>		For details, refer to Section 12. Video System Alignment. If “no” is displayed when the RESET button is pressed, it means that the data was not saved properly.
631	PB Y/C DELAY ADJUSTMENT	(Save NG)		
632	A/D Y CLAMP LEVEL ADJUSTMENT		RESET	For details, refer to Section 7. Electrical Alignment After Replacement Boards. If “no” is displayed when the RESET button is pressed, it means that the data was not saved properly.
633	A/D Y INPUT LEVEL ADJUSTMENT		ADV. SHIFT RESET	
634	A/D R-Y INPUT LEVEL ADJUSTMENT			
635	A/D B-Y INPUT LEVEL ADJUSTMENT			
636	A CAM REC VIDEO PHASE ADJUSTMENT			
637	A CAM REC Y/C DELAY ADJUSTMENT			For details, refer to Section 7. Electrical Alignment After Replacement Boards and Section 12. Video System Alignment. If “no” is displayed when the RESET button is pressed, it means that the data was not saved properly.
638	EE Y LEVEL ADJUSTMENT			For details, refer to Section 7. Electrical Alignment After Replacement Boards. If “no” is displayed when the RESET button is pressed, it means that the data was not saved properly.
639	EE CHROMA LEVEL ADJUSTMENT			

Buttons used : RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

For basic operation of buttons, refer to the beginning of 2-25. Menu.

Notes

- Menus No. 632 to 637 can be used only when the analog video signal from 50P is input.
- Menus No. 640 to 651 can be used only when the digital video signal from 76P is input.

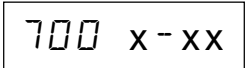
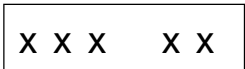
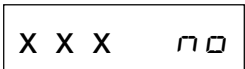

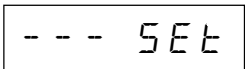
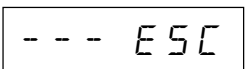
MENU No.	MENU DESCRIPTION	DISPLAY WINDOW(LCD)/ FACTORY SETTING	BUTTON USED	CONTENTS
640	ENCODER Y SYNC LEVEL ADJUSTMENT	<div style="border: 1px solid black; padding: 5px; display: inline-block;">X X X X X</div> (During test mode)	ADV. SHIFT RESET	For details, refer to Section 7. Electrical Alignment After Replacement Boards. If "no" is displayed when the RESET button is pressed, it means that the data was not saved properly.
641	ENCODER Y LEVEL ADJUSTMENT	<div style="border: 1px solid black; padding: 5px; display: inline-block;">X X X n o</div>		
642	ENCODER CHROMA LEVEL ADJUSTMENT 1	(Save NG)		
643	D/A R-Y OUTPUT LEVEL ADJUSTMENT			
644	ENCODER BURST LEVEL ADJUSTMENT 1			
645	ENCODER CHROMA LEVEL ADJUSTMENT 2			For details, refer to Section 7. Electrical Alignment After Replacement Boards. If "no" is displayed when the RESET button is pressed, it means that the data was not saved properly.
646	ENCODER BURST LEVEL ADJUSTMENT			
647	VIDEO CHROMA MIX LEVEL ADJUSTMENT			
648	VIDEO Y MIX LEVEL ADJUSTMENT			
649	PB VIDEO PHASE ADJUSTMENT			
650	PB SYNC PHASE ADJUSTMENT			
651	PB Y/C DELAY ADJUSTMENT			
652	Menu No. 630, 649, roughness adjustment <For DSP-1P (CE)>		ADV.	For details, refer to Section Section 7. Electrical Alignment After Replacement Boards.

Buttons used : RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

For basic operation of buttons, refer to the beginning of 2-25. Menu.

Notes

- When S_{Et} is displayed, pressing the RESET button will start initialization.
- When E_{SC} is displayed, pressing the RESET button will return to the menu item selection mode without initialization.

MENU No.	MENU DESCRIPTION	DISPLAY WINDOW(LCD)/ FACTORY SETTING	BUTTON USED	CONTENTS
700	RECORDING CURRENT ADJUSTMENT	 (When changing data)	RESET	For details, refer to Section 10. RF System Alignment.
701	PLL ADJUSTMENT	 (During test mode)		
702	AGC DELAY ADJUSTMENT	 (Save NG)		
704	AUTO EQ ADJUSTMENT			
750	VA EEPROM (SY) INITIALIZATION	 (When changing data)	RESET	Initializes the SY EEPROM (IC401) on the VA-172/172P/205B/205C board. If “no” is displayed when the RESET button is pressed, it means that the initialize data was not saved properly.
751	VA EEPROM (SP) INITIALIZATION	 (Starting initialization)		Initializes the SP EEPROM (IC652) on the VA-172/172P/205B/205C board. If “no” is displayed when the RESET button is pressed, it means that the initialize data was not saved properly.
752	KY EEPROM ECHO BACK DATA PRESET	 (Stopping initialization)		Preset results are displayed when the RESET button is pressed. YES : preset OK no : Save NG
753	MECHANISM CONTROL ADJUSTMENT ITEM INITIALIZATION		ADV. RESET	Initializes the EEPROM (IC1) on the HN-227 board. Initialize data save results are displayed when the RESET button is pressed. YES : preset OK noE0 : Save NG or initialized
754	ERROR HISTORY INITIALIZATION			Initializes error history. Initialize data save results are displayed when the RESET button is pressed. YES : preset OK no : Save NG
755	RP ADJUSTMENT ITEM INITIALIZATION			Initializes the EEPROM (IC770) on the RP-91 board. Initialize data save results are displayed when the RESET button is pressed. YES : preset OK no : Save NG

Buttons used : RESET → RESET (MENU SET) button, ADV. → ADVANCE button, MENU → MENU button, SHIFT → SHIFT button.

For basic operation of buttons, refer to the beginning of 2-25. Menu.

2-26. Notes on Repair Parts

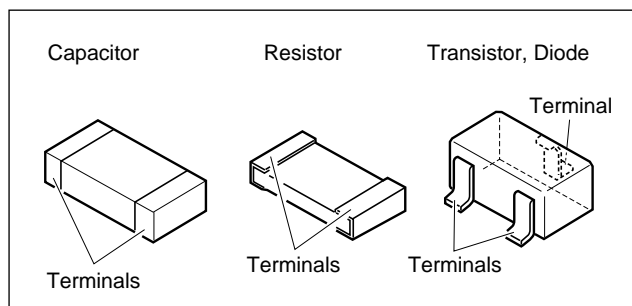
2-26-1. Replacement Procedure of Chip Parts

Tools Required

- Soldering iron: 20 W. If possible, use a soldering iron tip heat-controller set to 270 ± 10 °C.
- Braided wire: Solder Taul or equivalent
Sony Part No. 7-641-300-81
- Solder: 0.6 mm diameter is recommended.
- Tweezers

Soldering Conditions

- Soldering iron temperature: 270 ± 10 °C
- Soldering time: Less than 2 seconds per pin



Replacement of Resistor and Capacitor

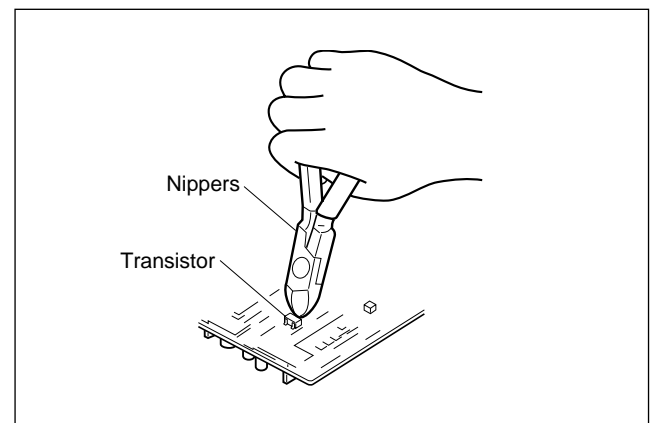
1. Place the soldering-iron tip onto the chip part and heat it up until the solder is melted. When the solder is melted, slide the chip part aside.
2. Make sure that there is no pattern peeling, damage and/or bridge around the desoldering positions.
3. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
4. Place the new chip part at the desired position and solder both ends.

Note

Do not use chips parts that have been removed once.

Replacement of Transistors and Diodes

1. Cut the terminals of the chip part with nippers.
2. Remove the cut leads with soldering iron.
3. Make sure that there is no pattern peeling, damage and/or bridge around the desoldering positions.
4. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
5. Place the new chip part at the desired position and solder the terminals.



Replacement of ICs

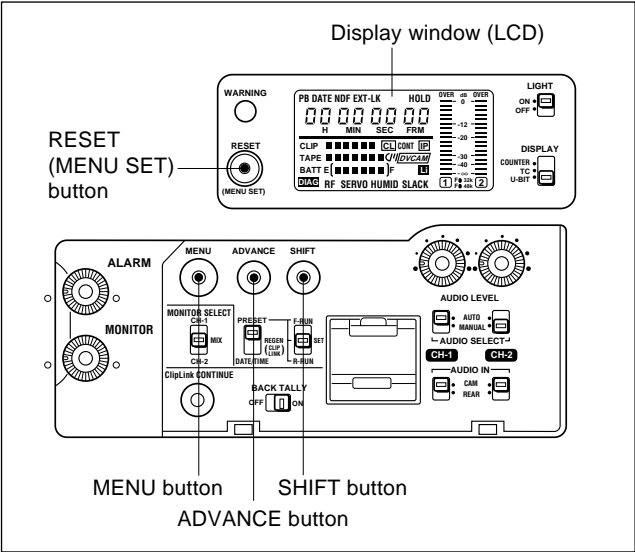
1. Using the braided wire, remove the solder around the pins of the IC-chip to be removed.
2. While heating up the pins, remove the pins one by one using tweezers and equivalent.
3. Make sure that there is no pattern peeling, damage and/or bridge around the desoldering parts.
4. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
5. Place the new chip part at the desired position and solder the terminals.

2-26-2. Note on Replacement of EEPROM

After replacing the EEPROM, initialize it using the following menu.

EEPROM	MENU No.
SY EEPROM (IC401) on VA-172/172P/205B/205C board	750
SP EEPROM (IC652) on VA-172/172P/205B/205C board	751
EEPROM (IC1) on HN-227 board	753
EEPROM on RP-91 board (IC770)	755

- Perform 12-3. Video Signal Adjustment when the EEPROM on the VA board (IC401 only) has been replaced or initialized.
- When the EEPROM (IC1) on the HN-227 board has been replaced or initialized, perform an input adjustment in the following procedures (Refer to each section for details).
 - ① 9-1. Capstan FG-DUTY Adjustment
 - ② 9-2. Reel FG-DUTY Adjustment
 - ③ 4-36. Reel Table FWD/REV Winding Torque Check Adjustment
 - ④ 5-8. Switching Position Adjustment
- When the EEPROM (IC770) on the RP-91 board has been replaced or initialized. Perform an adjustment in the order of menu No.700, 701 and 702 (Refer to Section 10. RF System Alignment for details).
- After replacing the EEPROM (IC204) on the FP-81 board, it is necessary to perform KY EEPROM ECHO BACK DATA PRESET using Menu No. 752. For details, refer to 7-3. FP-81 Board.

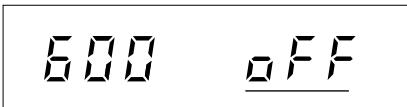


2-26-3. Initializing Procedure for EEPROM

1. Set the maintenance menu, and select Menu No. 75X.
 - (1) Press the MENU button while pressing the SHIFT button, then release the SHIFT button first, and release the MENU button after pressing more than 1 second. The following message will be displayed on the display window (LCD). (Characters underlined on the display window (LCD) in the following operations hereafter indicate that they are blinking.)



- (2) Press the RESET (MENU SET) button once to blink "oFF" . The following message will be displayed on the display window (LCD).



Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

- (3) Press the ADVANCE button once to select "on." The following message will be displayed on the display window (LCD).



Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

- (4) Press the RESET (MENU SET) button once. The following message will be displayed on the display window (LCD).



Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

- (5) Press the ADVANCE button several times to display Menu No. 75X.

The following message will be displayed on the display window (LCD).

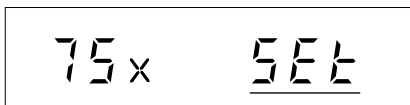


If the following message is displayed on the display window (LCD), it indicates the data, which was written by the powered on the last time, cannot be used properly. In this case, press the MENU button to exit from the maintenance menu, turn off the power and replace each old EEPROM which attached on the boards.



2. Press the RESET (MENU SET) button.

Check that the following message will be displayed on the display window (LCD).



Each time the ADVANCE button is pressed, “Set” and “ESC” will blink alternately.

To cancel, press the RESET (MENU SET) when “ESC” is displayed.

3. Press the RESET (MENU SET) button once.

Check that the following message will be displayed on the display window (LCD).



If “no” is displayed on the display window (LCD), exit from Menu No. 75X once, and perform the above procedure again. If the display does not change, check if the adjacent circuitly of EEPROM of the each boards are abnormal, and replace each old EEPROM which attached on the boards.

4. Press the MENU button to exit from the maintenance menu. The display window (LCD) will return to the state before the maintenance menu was displayed.

2-27. Auto Check Function

The error contents, measures and the possible abnormalities are as follows when the following codes are displayed as the result of Auto Check.

(Refer to the operation manual for the operating procedure of the Auto Check Function.)

Displays, error contents, measures or possible abnormalities

Displays	Error contents, measures or possible abnormalities
At good	The system can be used as it is when the recording status of video and audio is normal.
At ng-01	This is an error during normal operation. Exit the menu by pressing the MENU button. (To return to the status before displaying the VTR menu.) The error code is displayed. Analyze the cause of the error by referring to section "2-24. ERROR CODES" for the contents of the error.
At ng-02	When the RESET (MENU SET) button is kept pressed for about two seconds while "At ng-02" is displayed, the two digit error code appears. Analyze the cause of the error by referring to error code of the auto check code.
At ng-03	Exit the menu by pressing the MENU button. (To return to the status before displaying the VTR menu.) When any of the error codes from Er95-120 to Er95-12A is displayed, analyze the cause of the error by referring to section "2-24. ERROR CODES" for the contents of the error. If any error codes are not displayed, this is the condition that the sync signal is not supplied to IC1 of the FP-81 board from a camera. If result of the Auto Check remains unchanged even though the Auto Check is performed again after confirming connection between VTR and camera, the following causes are possible. Causes (possible abnormalities) <ul style="list-style-type: none">• Circuit is shorted.• Circuit is open.• Poor contact of the connectors (i.e. connection between VTR and camera)
At ng-04	It is detected that "A cassette is in the REC INHIBIT (SAVE) status". If result of the Auto Check remains unchanged even though the Auto Check is performed again after confirming that the REC/SAVE switch of a cassette is not set in the SAVE position (if the switch is set in SAVE, set it to the REC position, or use another cassette (switch of which is set in REC.)) Causes (possible abnormalities) <ul style="list-style-type: none">• The REC INHIBIT detect switch of a VTR is defective.• The circuit from the REC INHIBIT detect switch to IC502 pin-14 of the SV-164/213 board is defective. (Circuit is shorted or open, or poor contact of connector.)
At ng-05	It is detected that "Cassette is not present even though a cassette is inserted." If result of the Auto Check remains unchanged even though the Auto Check is performed again after inserting another cassette, the following causes are possible. Causes (possible abnormalities) <ul style="list-style-type: none">• A cassette compartment is defective.• Tape top sensor, or tape end sensor, or LED (including prism) or its peripheral circuit is defective. (Circuit is shorted or open, or poor contact of connector.)
o-HAUL	It is detected that "Error rate is deteriorated (The read-out error during playback of the recorded video/audio data has increased.)" The system can be used as it is when the recording status of video and audio is normal, however, the following causes are possible. Causes (possible abnormalities) <ul style="list-style-type: none">• Heads are clogged.• Tape path needs adjustment.• The RP-91 board is defective.• Poor contact of the flexible card wires which are connected to the RP-91 board.

Auto Check Error Code

If “At ng-02” is displayed as the result of Auto Check and when the RESET (MENU SET) button is kept pressed for about two seconds while “At ng-02” is displayed, the two digit error code appears.

Displays, error contents, measures or possible abnormalities

Code	Error contents, measures or possible abnormalities
00	It is in the status that the data other than the video and audio data which is recorded on a tape, cannot be read out. The signal circuit from the head of drum to IC of the VA-172/172P/205B/205C board can be possibly defective. Causes (possible abnormalities) <ul style="list-style-type: none"> • Poor contact of connectors • Head clogging • The RP-91 board is defective. • The MB-661 board is defective. • The VA-172/172P/205B/205C board is defective.
other than 00	The error contents, measures and possible abnormalities are different depending upon the respective processes. (Refer to the followings.)

1. Cassette Out

When the Auto Check is performed, the cassette compartment is automatically opened (when a cassette is present, it is ejected), and the Auto Check is performed during the period from the time when user inserts a cassette until the cassette compartment is closed. When any abnormalities are detected, the error code is displayed.

Displays, error contents, measures or possible abnormalities

Code	Error contents, measures or possible abnormalities
12	The cassette compartment is locked.
13	The cassette compartment is not attached.
18	Tape top sensor does not respond.
19	Tape end sensor does not respond.
18	Both tape top and tape end sensors do not respond.
18	LEDs of the tape top end sensor are abnormal. ON/OFF voltage is abnormal.
20	The function cam does not enter the STBY mode.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
28	The detection voltage/current of the function cam motor does not return to 0.
38	The detection voltage/current of the drum motor does not return to 0.
48	The detection voltage/current of the capstan motor does not return to 0.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
c8	The detection voltage/current of the reel shift motor does not return to 0.

2. Cassette In

Insert a cassette into the machine and close the lid of the cassette holder.

Check is performed during tape loading. When any abnormalities are detected, the error code is displayed.

Displays, error contents, measures or possible abnormalities

Code	Error contents, measures or possible abnormalities
12	The cassette compartment lock is released.
18	"Tape is present" is not detected.
18	LEDs of the tape top end sensor are abnormal.
20	Positions of the function cam are not detected in the correct order.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
d0	The free running frequency of PLL on the RP-91 board is abnormal.

3. Record

Press the VTR button of the camera or of the lens.



Check is performed during the test recording of about one minute. When any abnormalities are detected, the error code is displayed.

Displays, error contents, measures or possible abnormalities

Code	Error contents, measures or possible abnormalities
12	The cassette compartment lock is released.
18	Tape top is detected.
18	LEDs of the tape top end sensor are abnormal.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
28	The operating voltage/current of the function cam motor is abnormal.
38	The operating voltage/current of the drum motor is abnormal.
40	The duty factors of the capstan FG (A) and FG (B) are abnormal.
48	The operating voltage/current of the capstan motor is abnormal.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
98	Operating voltage/current of the reel motor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
c8	The operating voltage/current of the reel shift motor is abnormal.

4. Cue Up To Record Start Point

After tape is recorded for about one minute, tape is rewound up to the record start point.

Check is performed during the period from the time when recording is terminated until the tape is rewound up to the record start point. When any abnormalities are detected, the error code is displayed.

Displays, error contents, measures or possible abnormalities

Code	Error contents, measures or possible abnormalities
12	The cassette compartment lock is released.
19	Tape end is detected.
1B	LEDs of the tape top end sensor are abnormal.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
2B	The operating voltage/current of the function cam motor is abnormal.
3B	The operating voltage/current of the drum motor is abnormal.
4B	The operating voltage/current of the capstan motor is abnormal.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
9B	Operating voltage/current of the reel motor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
cB	The operating voltage/current of the reel shift motor is abnormal.

5. Playback

The recorded segment is played back.

Check is performed during playback. When any abnormalities are detected, the error code is displayed.

Displays, error contents, measures or possible abnormalities

Code	Error contents, measures or possible abnormalities
12	The cassette compartment lock is released.
18	Tape top is detected.
1B	LEDs of the tape top end sensor are abnormal.
21	LED of the mechanical function cam mode sensor is abnormal.
22	LED of the mechanical function cam mode sensor is abnormal.
23	LED of the mechanical function cam mode sensor is abnormal.
24	LED of the mechanical function cam mode sensor is abnormal.
2B	The operating voltage/current of the function cam motor is abnormal.
30	The SSA (switching position) is incorrect.
3B	The operating voltage/current of the drum motor is abnormal.
4B	The operating voltage/current of the capstan motor is abnormal.
50	LED of the supply reel FG sensor is abnormal.
70	LED of the take-up reel FG sensor is abnormal.
9B	Operating voltage/current of the reel motor is abnormal.
c1	LED of the reel position (standard cassette position) sensor is abnormal.
c2	LED of the reel position (mini cassette position) sensor is abnormal.
cB	The operating voltage/current of the reel shift motor is abnormal.
e0	The system data that is read from IC774 on the RP-91 board, and the system data that is read from IC671 on the VA-172/172P/205B/205C board are abnormal. (The system data: The recorded data that can be read when the servo is locked.)
e1	The system data (the system data is the recorded data that can be read when the servo is locked) is abnormal. (The respective data of ABS Track No., time code pack and bin pack must be free from errors.)

Section 3

Periodic Maintenance and Inspection

3-1. Maintenance Time Table

The times in the tables, indicating when parts are to be replaced, are not time guarantee for parts. Use these times as references for drawing up maintenance and inspection schedules for extending the life of the unit and tape use.

The time to replace parts differs according to the environments and conditions in which the unit is being used.

☆ : Replace ◇ : Check (Adjustment) ○ : Clean

Maintenance Parts			Hours Meter	Maintenance Time (H)			
Item	Part No.	Name	Display Mode	2000	4000	6000	8000
Drum Assembly	A-7044-005-	DEH-03A-R	A	☆	☆	☆	☆
Drive Block							
LD Motor	A-8311-086-	LD Motor Block Assembly	A	◇	◇	◇	◇
Reel Motor	A-8311-088-	Shift Motor Assembly	A	—	◇	—	◇
Tension Regulator Band	X-3678-777-	TR Band Assembly	A	☆	☆	☆	☆
T Sub Reel	X-3678-885-	Sub Reel Gear (T) Assembly	A	☆	☆	☆	☆
S Sub Reel	X-3678-886-	Sub Reel Gear (S) Assembly	A	☆	☆	☆	☆
Idler Gear	X-3678-884-	Idler Gear Assembly	A	—	☆	—	☆
Capstan Motor	8-835-530-	DC Motor (SCD12A/J-N)	A	—	◇	—	◇
Brake Block							
T Hard Brake	A-8278-432-	Hard Brake Arm (T) Assembly	A	☆	☆	☆	☆
S Hard Brake	A-8278-433-	Hard Brake Arm (S) Assembly	A	☆	☆	☆	☆
T Soft Brake	X-3678-869-	Soft Brake Arm (T) Assembly	A	☆	☆	☆	☆
TL Soft Brake	X-3678-870-	Soft Brake (TL) Assembly	A	☆	☆	☆	☆
Tape Path Block							
Pinch Roller	X-3678-788-	Pinch Arm Assembly	A	☆	☆	☆	☆
Guide Roller TG-1,TG-8	3-604-702-	Roller TG-18	A	◇	◇	◇	◇
Guide Roller TG-2	A-8278-429-	TR Arm Assembly	A	◇	◇	◇	◇
Guide Roller TG-3	3-604-717-	Roller TG-3	A	◇	◇	◇	◇
Guide Roller TG-5	X-3604-927-	TG-5 Assembly 2	A	◇	◇	◇	◇
Guide Roller TG-7	3-748-777-	Roller TG-7	A	◇	◇	◇	◇
Tape Path	—	—	—	○	○	○	○
Clener							
Cleaning Roller	A-8311-505-	C Assembly	A	☆	☆	☆	☆
Others							
Cassette Memory Terminal	A-8311-396-	MIC Holder (C) Assembly	A	◇○	◇○	◇○	◇○

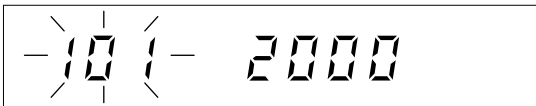
HOURS METER MODE A : DRUM RUNNING

3-2. Hours Meter

An hours meter is provided in the MENU mode.
The total operating time of the unit, total rotation time of the drum, and total running time of the tape are displayed on the window at the side.
It is recommended that this hours meter be used as a reference for carrying maintenance.
Display the hours meter using the following method.

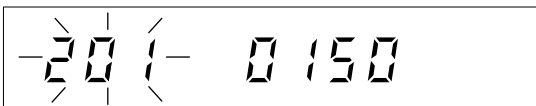
1. When the MENU switch on the side is pressed, the following will be displayed.

<Display Example>



2. When the ADVANCE switch is pressed once, the following will be displayed.

<Display Example>



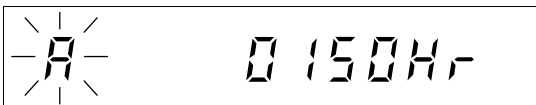
3. Each time the SHIFT switch is pressed, the display will change as follows.

```

      ↓
A  : DRUM RUNNING METER
      ↓
B  : TAPE RUNNING METER
      ↓
C  : OPERATION METER
      ↓
201 : DRUM RUNNING METER
  
```

<Display Example: A>

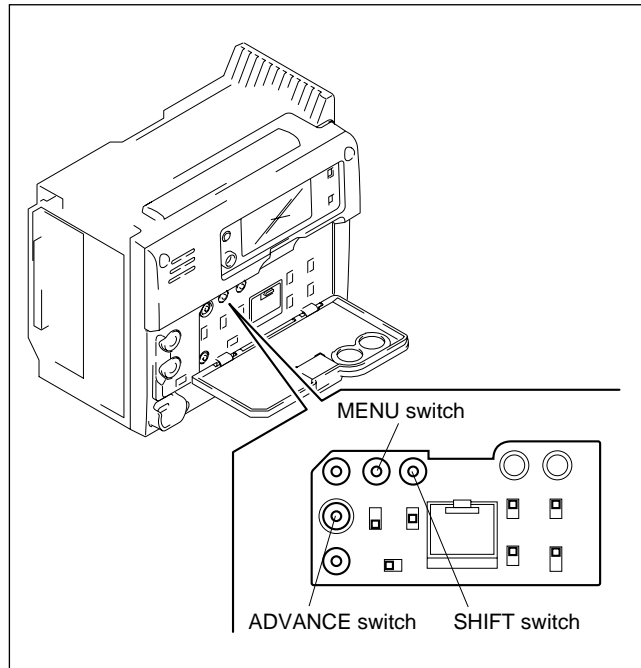
This means that the total time of the drum rotating is 150H.



4. To end the MENU mode, press the MENU switch again.

Note

The hours meter data is preserved in the EEPROM (IC204) on the FP-81board. Be sure to perform the EEPROM Echo Back Data Preset by Selecting Menu No.752 of maintenance menu when replacing the FP-81board or EEPROM (IC204) on the FP-81board. Therefore, the data which was written of powered on the last time, is written in the new EEPROM. However, when the error occurs while writing in the EEPROM after replacing the FP-81board, replace the EEPROM (IC204) attached on the old board.



3-3. Maintenance after Repairs

After repairing the unit, carry out the following maintenance regardless of how long the unit has been used.

- Cleaning of video head
- Cleaning of tape path

3-4. Cleaning Method

To perform cleaning, remove the cover of the cassette up compartment cover. (Refer to 4-2. Replacement of Cassette Compartment Assembly.)

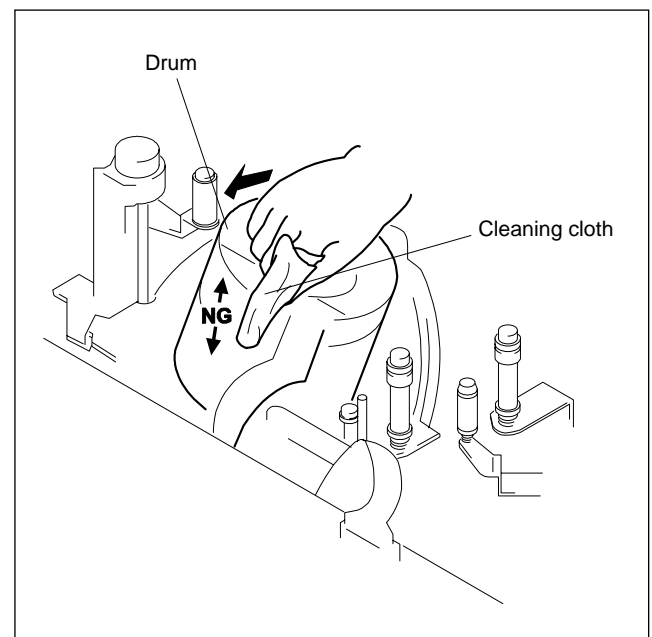
When loading cassette tapes after cleaning, wait for the cleaning liquid to evaporate completely.

(1) Cleaning the Rotary Drum Assembly

Using a cleaning cloth moistened with cleaning liquid, gently touch the cloth on the rotary drum assembly. Rotate the rotary upper drum slowly in the counterclockwise direction with your fingers to clean.

Note

Do not rotate the motor with the power turned ON nor rotate it in the clockwise direction with your fingers. Do not move the cleaning cloth over the head chip in the vertical direction, as this may damage the head chip. Never clean the head in this way.

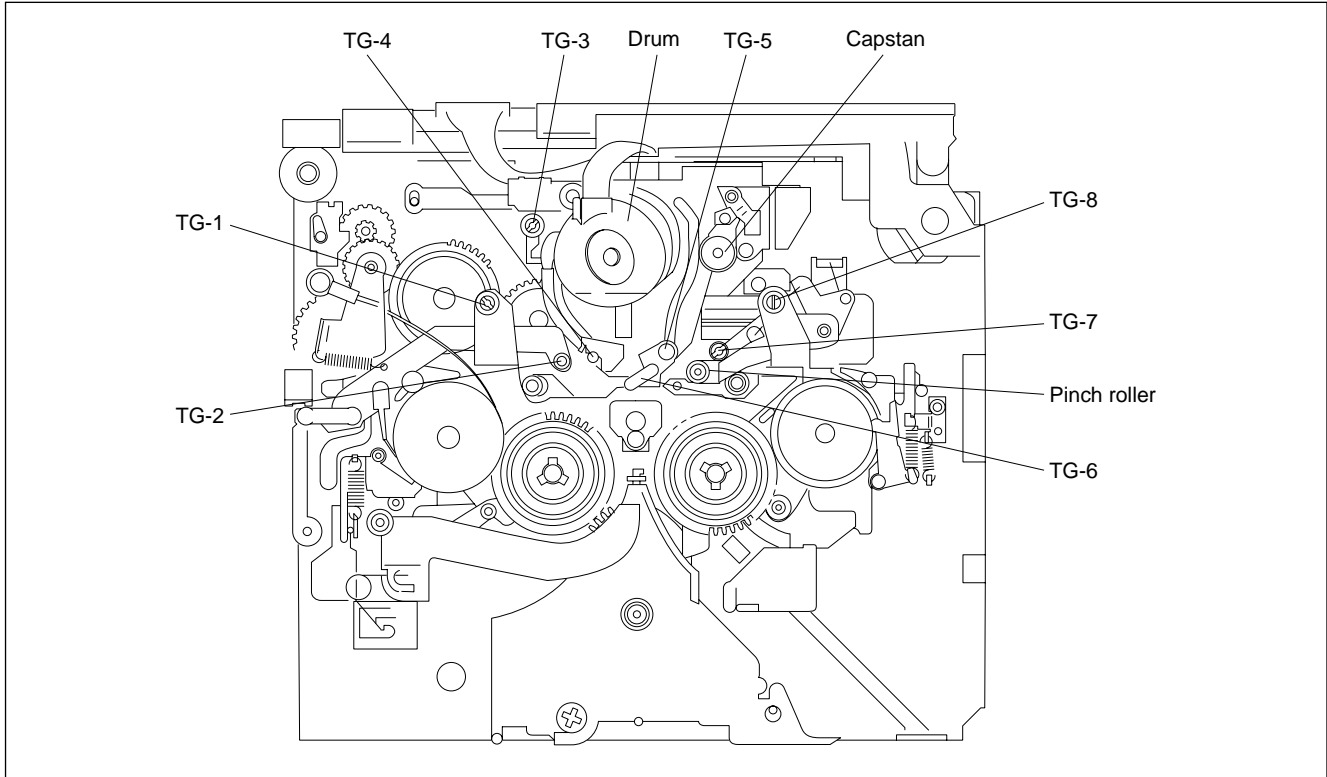


(2) Cleaning the Tape Path

Set the threading end state, and clean the tape path (TG-1, 2, 3, 4, 5, 6, 7, 8, capstan, pinch roller) and lower drum with a stick moistened with cleaning liquid.

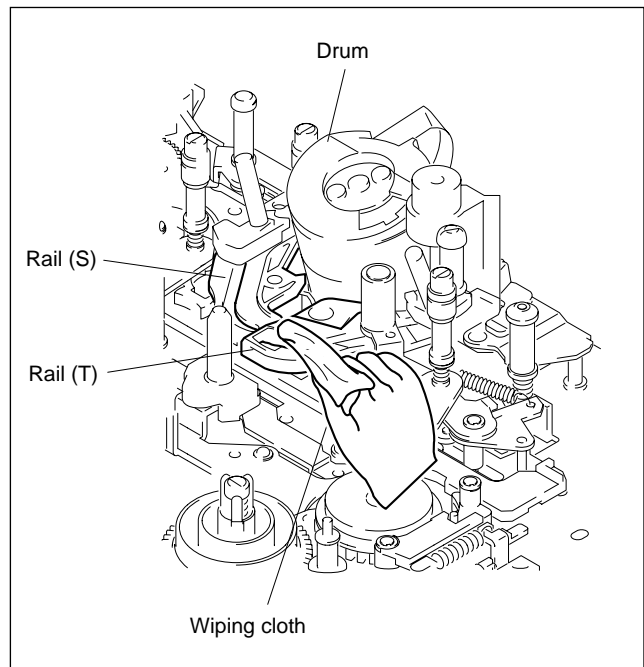
Notes

- Make sure the oil and grease on the linked mechanisms do not adhere to the stick.
- Do not use a stick moistened with alcohol for cleaning other guides. However clean the pinch roller with alcohol.



(3) Cleaning the Rail

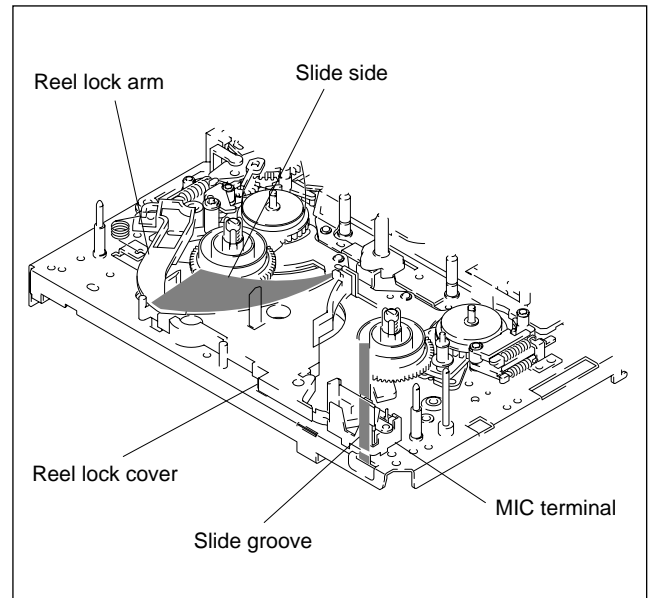
Wipe with a cloth moistened with alcohol.



3-5. After Use in Coastal Areas and Dusty Areas

After use in coastal and dusty areas, it is recommended that the following be checked.

1. Wipe away sand and dusts in the unit with a cleaning cloth moistened with cleaning liquid, or remove carefully with an air brush, etc.
2. Clean the video head with a cleaning cloth moistened with cleaning liquid.
3. Clean the tape path (drum surface, tape guide, capstan shaft, pinch roller, etc.)
4. Clean the groove for sliding the MIC terminal on the chassis and the side of the reel lock cover for sliding the reel lock arm. (See the figure.)
5. Clean the side touching the brake shoe of the reel table.
6. Rotate the rotating body of the tape guide, pulley, capstan, and pinch roller, and check that no abnormal noise is produced.
Replace the parts if an abnormal noise appears.
7. After use in coastal areas, remove the printed wiring board from the unit, and remove the sand in the component side completely with an air brush. Then clean with a cleaning cloth moistened with cleaning liquid.
After this, clean the soldering side adequately with a wiping cloth moistened with cleaning liquid.
8. Clean the connector pin of the connector panel thoroughly.
9. Perform general checks and check that there are no abnormalities.



Section 4

Replacement/Alignment of Major Parts

4-1. General Information on Replacement/Alignment of Parts

1. Cassette compartment

When replacing parts and adjusting mechanism parts, unless specified otherwise, remove the cassette compartment from the unit.

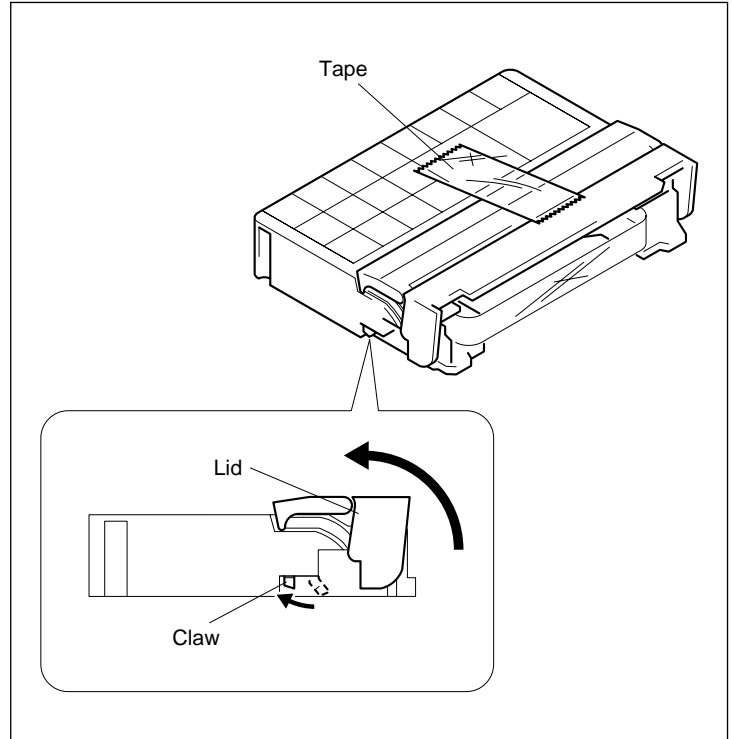
Details on how to replace the cassette compartment are provided in Section 4-2.

When setting the tape running state without the cassette compartment, open the cassette lid, and secure the lid with a tape, etc.

Mini cassette

- Move the claw (one) as shown in the figure, and open the lid.

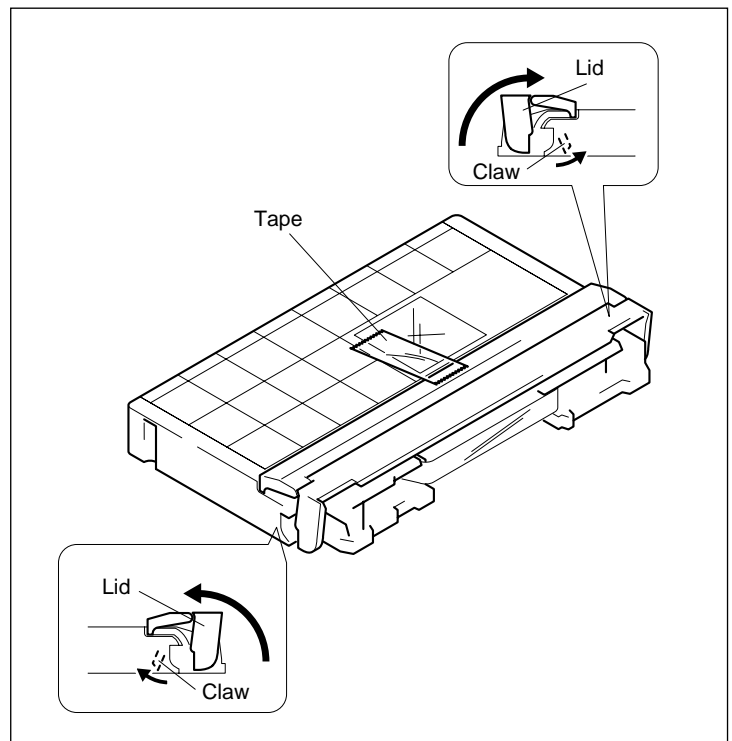
Mini cassette



Standard cassette

- Move the claws (two) as shown in the figure, and open the lid.

Standard cassette



2. Mode

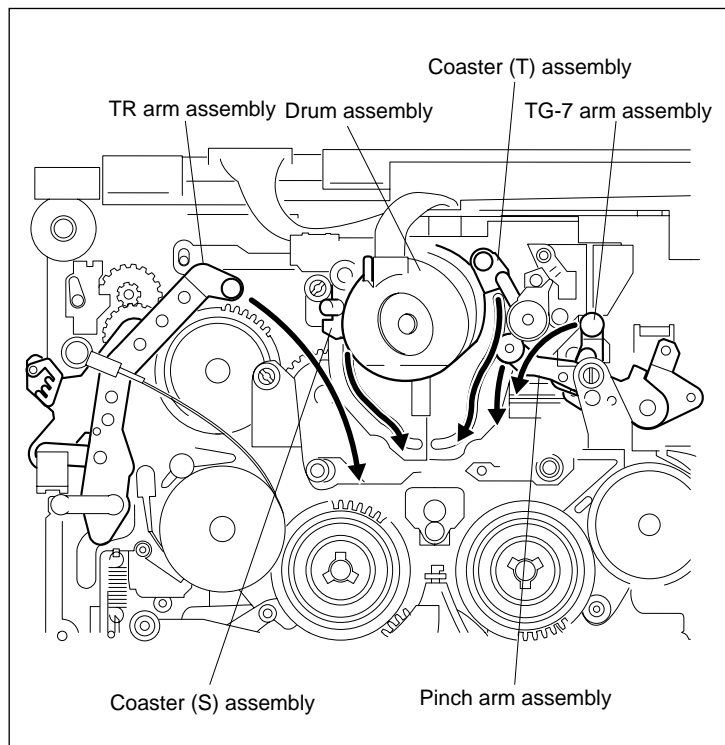
The TR arm assembly, coaster (S/T) assembly, pinch arm assembly and TG-7 arm assembly move and become in either threading end or unthreading end state.

In the above state, they can stay in any position unless the mode has been specified on the following pages.

Threading end:

The TR arm assembly, coaster (S/T) assembly, and pinch arm assembly, and TG-7 arm assembly are positioned at the drum side as shown in the figure.

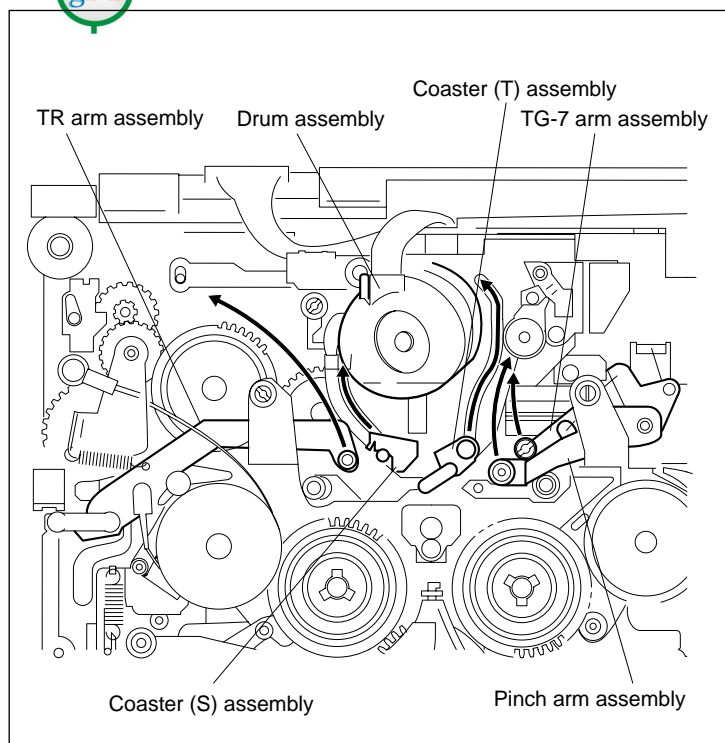
Threading End



Unthreading end:

The TR arm assembly, coaster (S/T) assembly, pinch arm assembly, and TG-7 arm assembly are positioned at the cassette side.

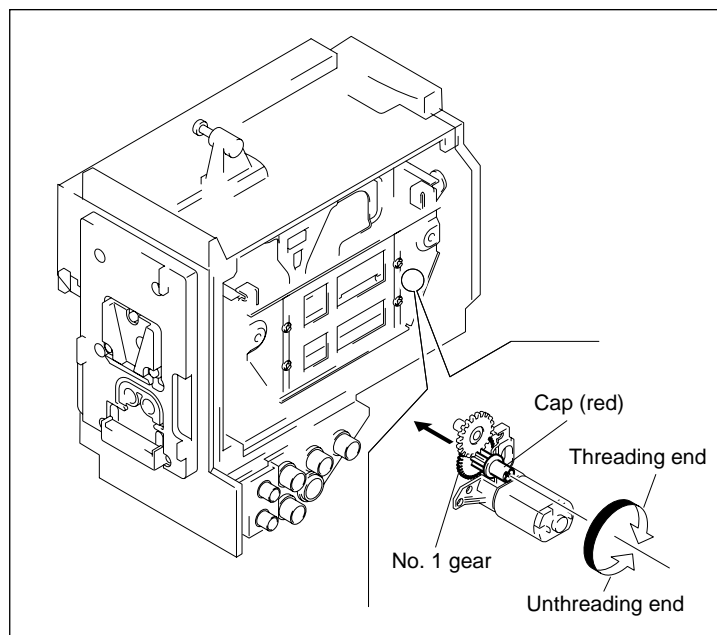
Unthreading End



- 1) Setting manually
 - Remove the left panel assembly.
(Refer to Section 2-1.)
 - Rotate the cap and No.1 gear shown in the figure in the arrow direction while pressing it down to set the threading end/unthreading end.
- 2) Setting with the menu

Select Menu No. 613, and set the function cam mode.

 - Threading is carried out while the STOP button is pressed.
 - Unthreading is carried out while the EJECT button is pressed.



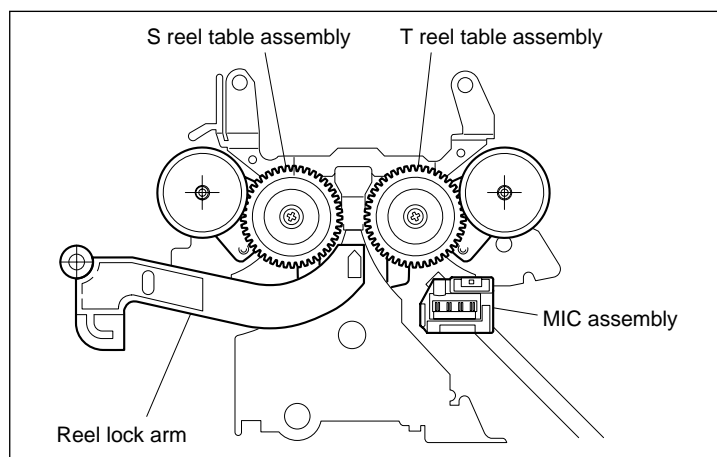
3. Reel Table Position

It is set to the mini cassette position/standard cassette position according to the position of the S reel table assembly/T reel table assembly.

Mini cassette position:

The reel lock arm, S reel table assembly/T reel table assembly and MIC assembly are positioned at the drum side as shown in the figure.

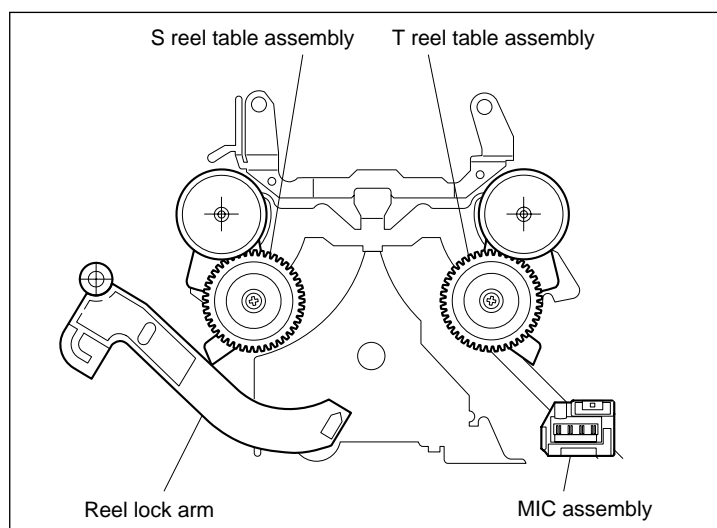
Mini cassette position



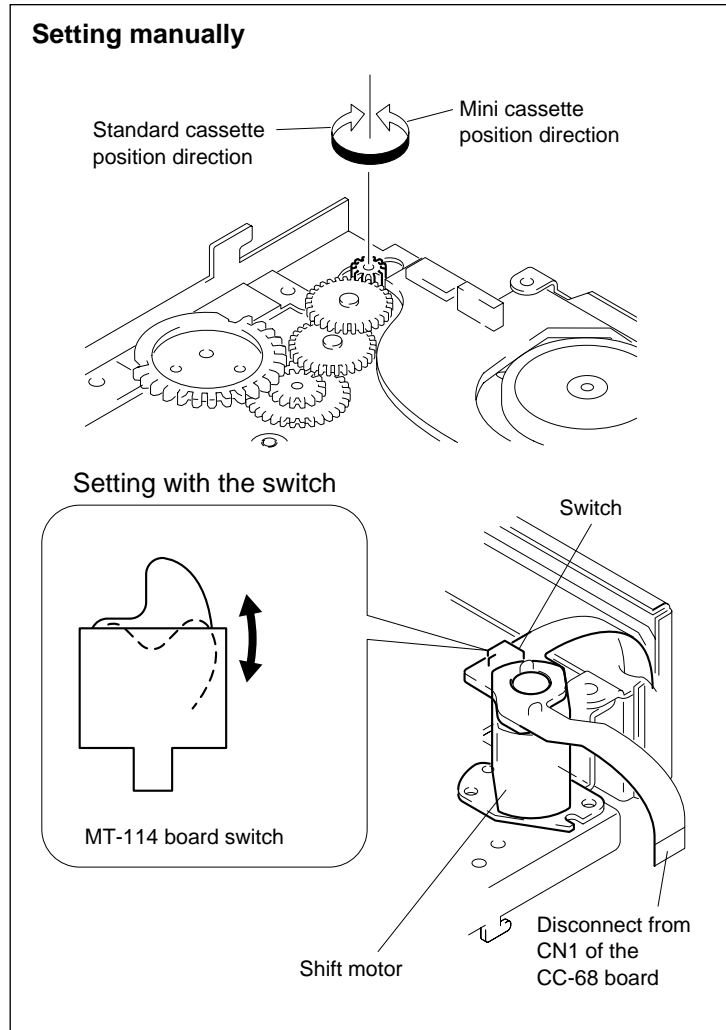
Standard cassette position:

The reel lock arm, S reel table assembly/T reel table assembly and MIC assembly are positioned at the inserting side of the cassette as shown in the figure.

Standard cassette position



- 1) Setting manually
 - Open the right panel assembly.
(Refer to Section 2-1.)
 - Remove the DC-DC converter.
(Refer to Section 2-12.)
 - Move up the cassette compartment.
(Refer to Section 2-7.)
 - Rotate the gear of the shift motor shown in the figure in the arrow direction, to set the mini cassette position/standard cassette position.
- 2) Setting with the switch
 - Set the mode to the unthreading end.
 - Move up the cassette compartment.
 - Disconnect the connector (CN1) of the CC-68 board.
 - Turn ON the power.
 - Press the switch on the MT-114 board on the reel shift motor to move to the mini cassette position/standard cassette position.
4. Do not use the stopper washers that secure parts once they have been removed for attaching new parts. After replacing parts, always use new stopper washers.
To attach stopper washers, push in until the space between the attached part and stopper washer is 0.1 to 0.2 mm.



4-2. Replacement of Cassette Compartment Assembly

Reel table position: Mini cassette position

Mode: Unthreading end

Removal

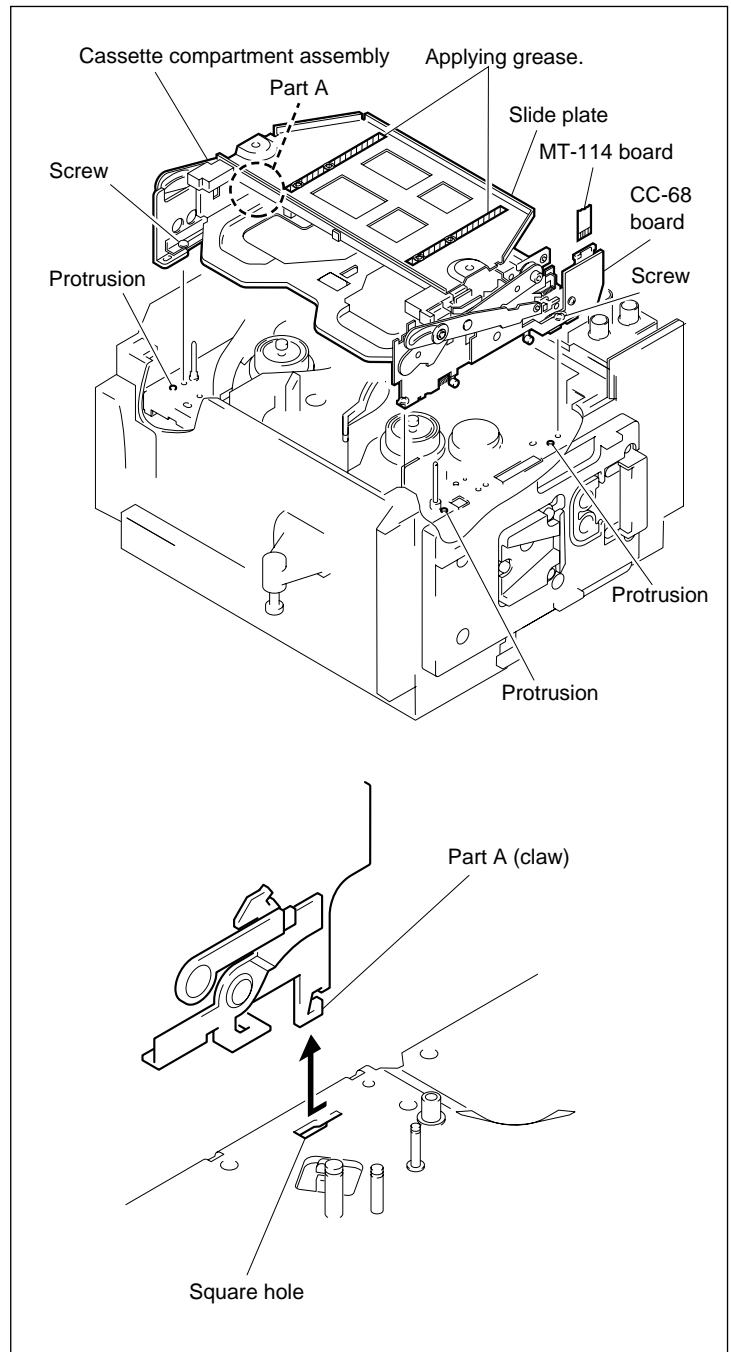
1. Eject and turn the cassette compartment assembly up.
2. Pull out the MT-114 board on the reel shift motor shown in the figure from the CC-68 board.
3. Loosen the three screws, remove part A from the square hole, and remove the cassette compartment assembly.

Attachment

4. Apply a small quantity of the grease SGL-801 (7-651-000-11) to the two square holes (shown with oblique lines in the figure) on the slide plate, then apply it in all square holes entirely.
5. Attach the new cassette compartment assembly and removed parts in the reverse order of steps 1 to 3.

Note

Adjust the cassette compartment assembly to the three protrusion on the mechanism chassis first before securing the screws.

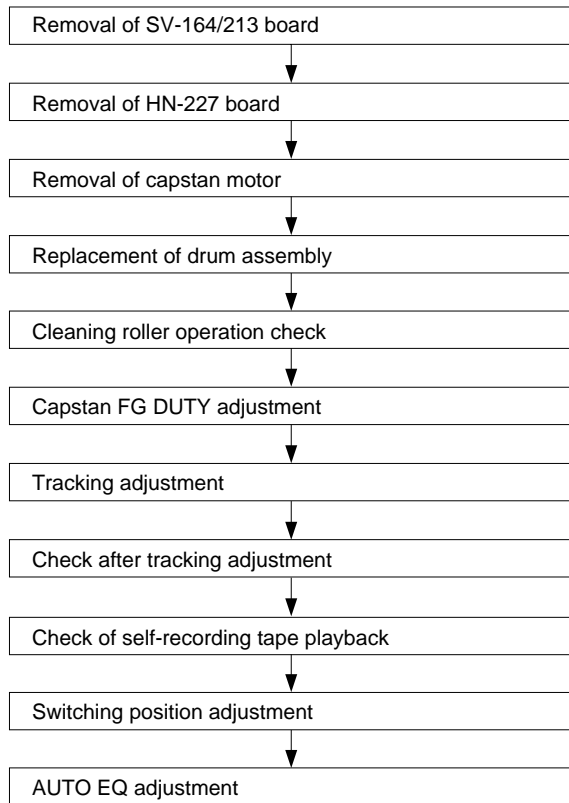


4-3. Replacement of Drum Assembly

Reel table position: Standard cassette position

Mode: Unthreading end

Replacement Flowchart



Removal

1. Remove the SV-164/213 board. (Refer to 2-10-4.)
2. Remove the HN-227 board. (Refer to 2-10-5.)
3. Remove the capstan motor. (Refer to 4-28.)
4. Disconnect the harness shown in the figure from the connector (CN771) of the RP-91 board.
5. Remove the three screws and remove the drum assembly.

Attachment

6. Adjust the holes of the new drum assembly to the two protrusions shown in the figure, and attach using three screws.
 - Tightening torque: 0.0294 N•m (0.3 kg•cm)

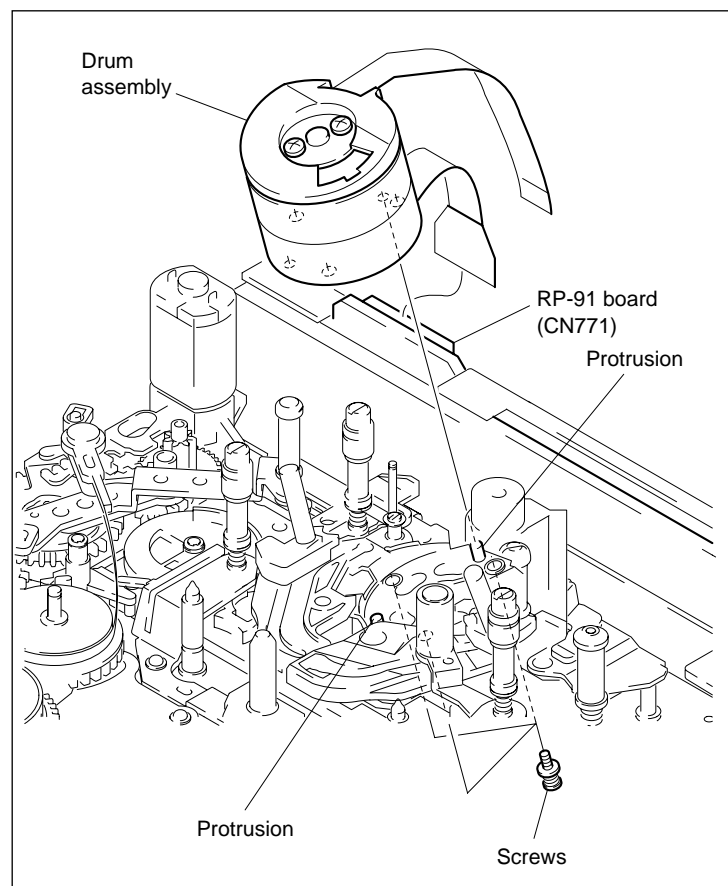
Note

When attaching, do not touch the tape path side of the drum to prevent it from scratching and becoming dirty.

7. Attach the removed parts in the reverse order of steps 1 to 4.

Check/Adjustment

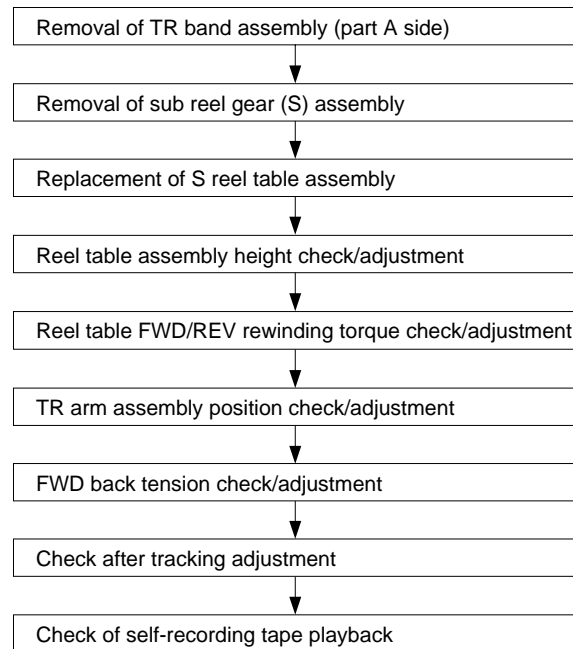
8. Perform the cleaning roller operation check. (Refer to step 3 in the Section 4-21.)
9. Perform the capstan FG DUTY adjustment at the Menu M601. (Refer to Section 9-1.)
10. Perform the tracking adjustment. (Refer to Section 5-3.)
11. Perform the check after tracking adjustment. (Refer to Section 5-4.)
12. Perform the check of self-recording tape playback. (Refer to Section 5-5.)
13. Perform the switching position adjustment at Menu M605. (Refer to Section 5-6.)
14. Perform the AUTO EQ adjustment at the Menu M704. (Refer to Section 10-4.)



4-4. Replacement of S Reel Table Assembly

Reel table position: Standard cassette position

Replacement Flowchart



Removal

1. Remove the TR band assembly (part A side) shown in the figure.
2. Remove the sub reel gear (S) assembly. (Refer to Section 4-10.)
3. Remove the stopper washer shown in the figure, and remove the reel lock driving arm.

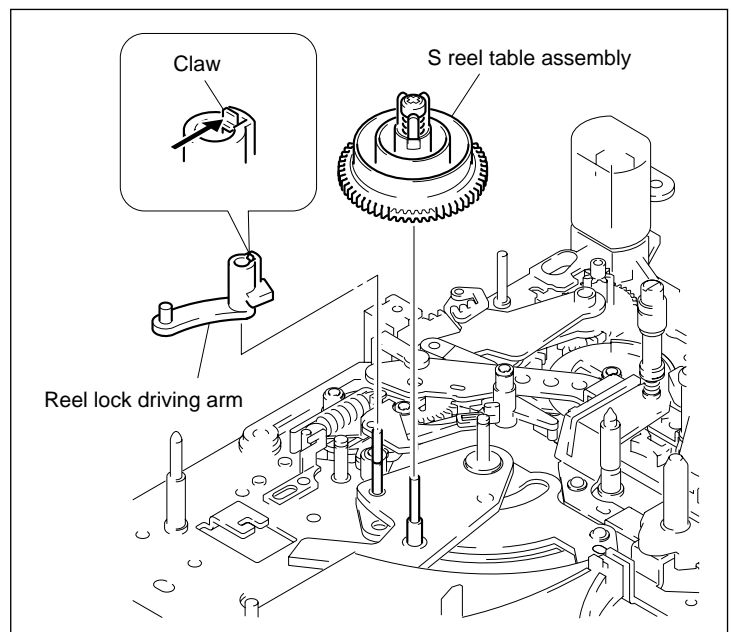
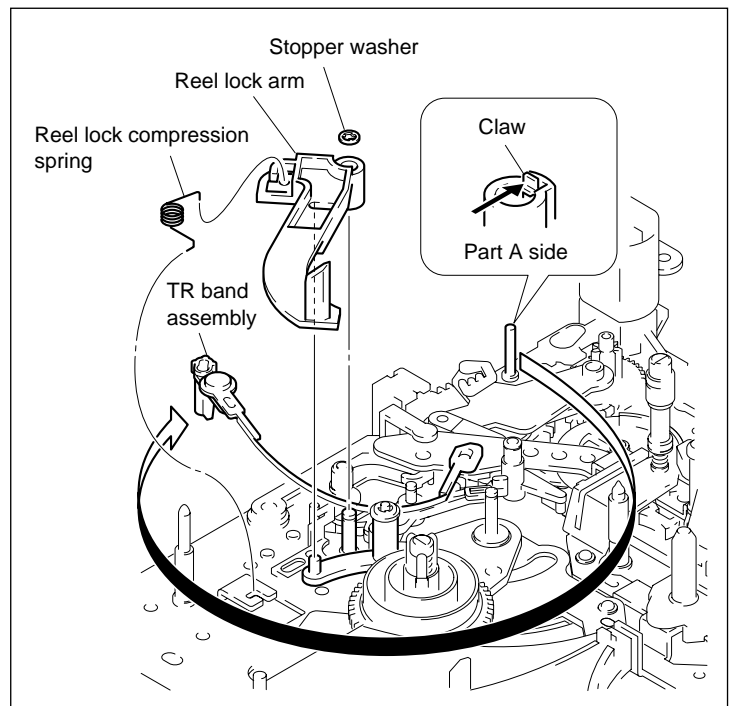
Replacement/Attachment

4. Remove the S side reel table assembly, and replace with a new reel table assembly.
5. Attach the removed parts in the reverse order of steps 1 to 3.
6. Rotate the S reel table assembly with your hand, and check that it rotates smoothly.

Check/Adjustment

7. Perform reel table assembly height check/adjustment. (Refer to Section 4-34.)
8. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-36.)
9. Perform TR arm assembly position check/adjustment. (Refer to Section 4-38.)
10. Perform FWD back tension check/adjustment. (Refer to Section 4-37.)

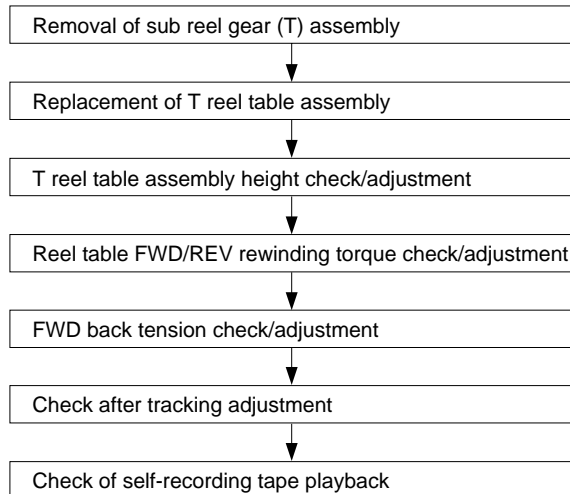
11. Perform the check after tracking adjustment. (Refer to Section 5-4.)
12. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



4-5. Replacement of T Reel Table Assembly

Reel table position: Standard cassette position

Replacement Flowchart



Removal

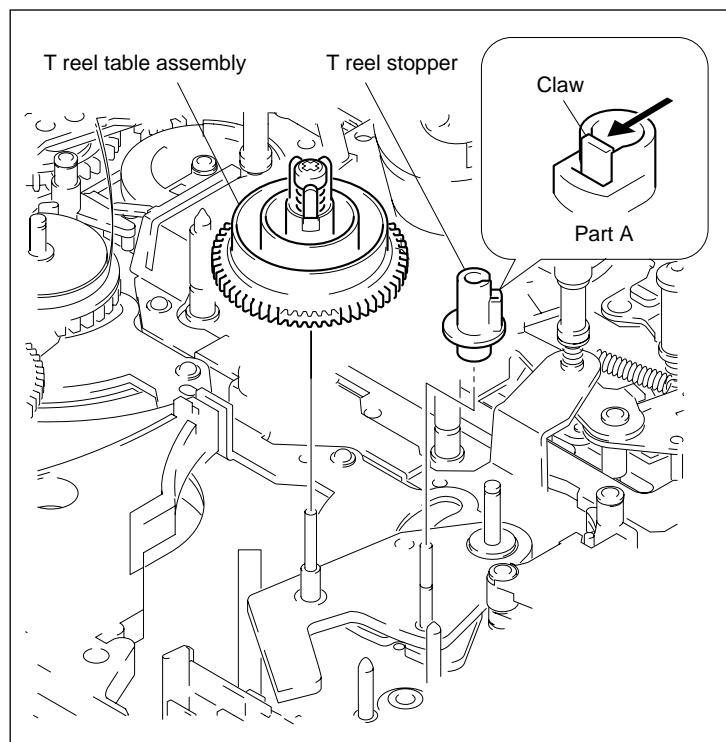
1. Remove the sub reel gear (T) assembly.
(Refer to Section 4-11.)
2. While pressing the claw at part A shown in the figure in the arrow direction, remove the T reel stopper upwards.

Replacement/Attachment

3. Remove the T reel table assembly, and replace with a new reel table assembly.
4. Attach the removed parts in the reverse order of steps 1 and 2.
5. Rotate the T reel table assembly with your hand, and check that it rotates smoothly.

Check/Adjustment

6. Perform reel table assembly height check/adjustment. (Refer to Section 4-34.)
7. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-36.)
8. Perform FWD back tension check/adjustment. (Refer to Section 4-37.)
9. Perform the check after tracking adjustment. (Refer to Section 5-4)
10. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



4-6. Replacement of Soft Brake Arm (S)

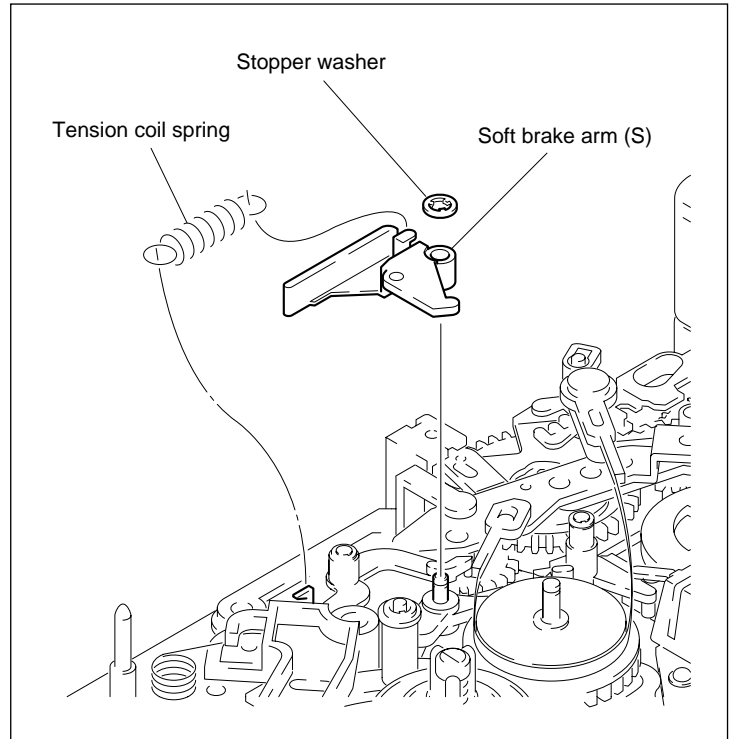
Mode: Unthreading end

Removal

1. Remove the tension coil spring shown in the figure.
2. Remove the stopper washer, and remove the soft brake arm (S).

Attachment

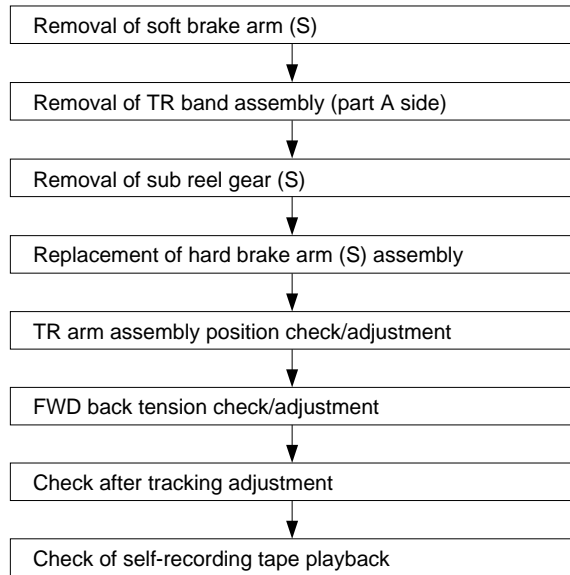
3. Attach a new soft brake arm (S) in the reverse order of step 2.
4. Attach the tension coil spring of step 1.



4-7. Replacement of Hard Brake Arm (S) Assembly

Mode: Unthreading end

Replacement Flowchart



Removal

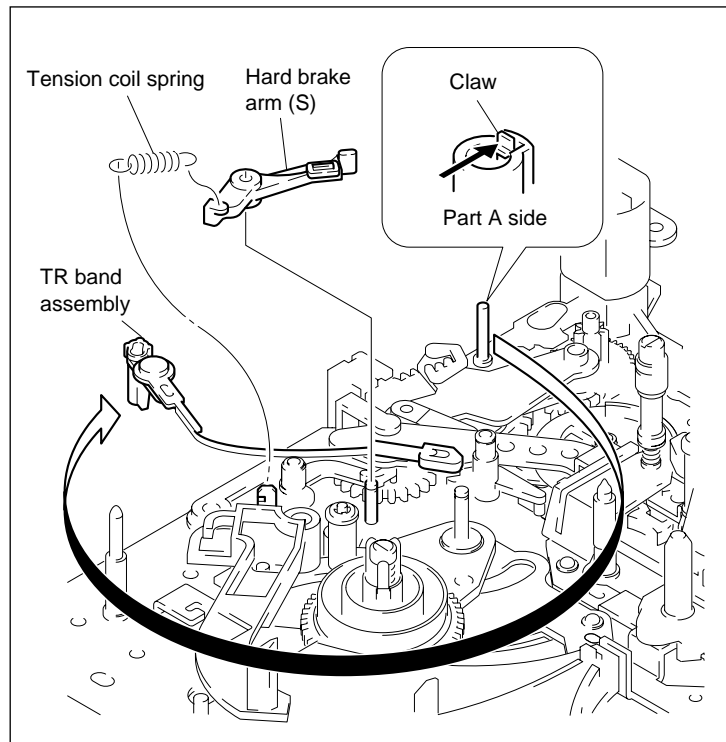
1. Remove the soft brake arm (S).
(Refer to Section 4-6.)
2. Remove the TR band assembly (part A side).
3. Remove the sub reel gear (S) assembly.
(Refer to Section 4-10.)
4. Remove the tension coil spring shown in the figure.
5. Remove the hard brake arm (S) assembly.

Attachment

6. Attach a new hard brake arm (S) assembly.
7. Attach the removed parts in the reverse order of steps 1 to 4.

Check/Adjustment

8. Perform TR arm assembly position check/adjustment. (Refer to Section 4-38.)
9. Perform FWD back tension check/adjustment. (Refer to Section 4-37.)
10. Perform the check after tracking adjustment. (Refer to Section 5-4.)
11. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



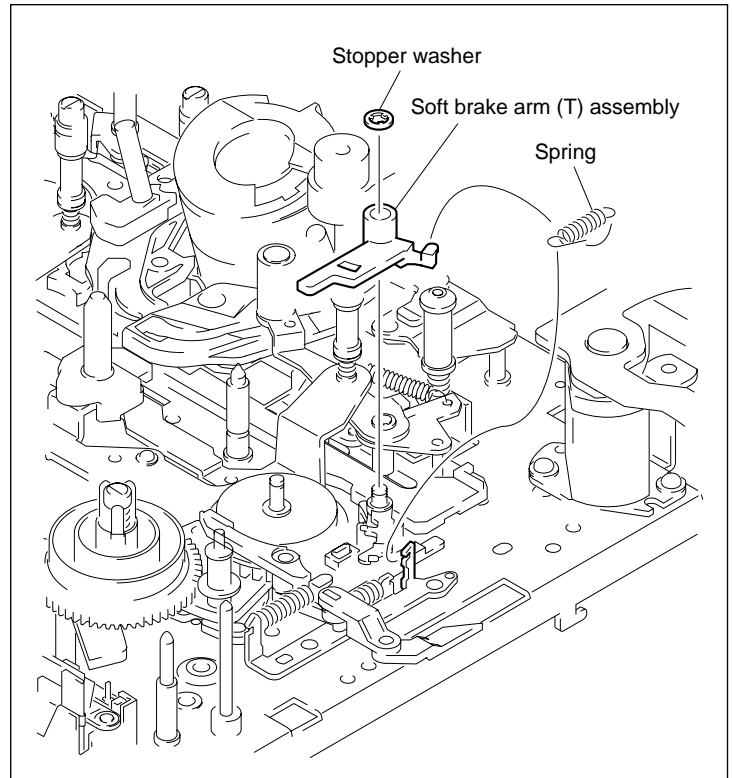
4-8. Replacement of Soft Brake (T) Assembly Components

4-8-1. Replacement of Soft Brake Arm (T) Assembly

Reel table position: Standard cassette position
Mode: Unthreading end

Removal/Attachment

1. Remove the spring shown in the figure.
2. Remove the stopper washer and remove the soft brake arm (T) assembly.
3. Attach the soft brake arm (T) assembly in the reverse order of steps 1 and 2.

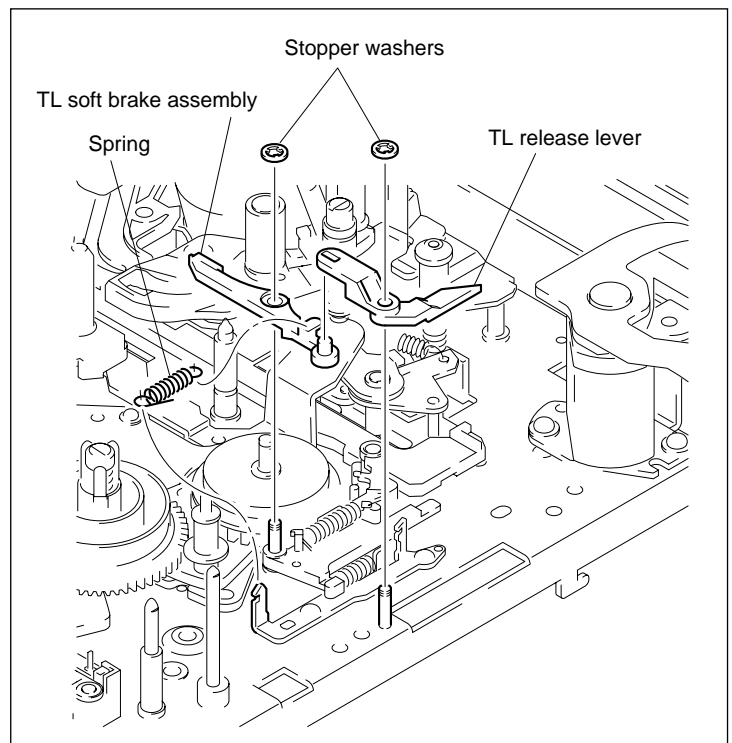


4-8-2. Replacement of TL Soft Brake Assembly

Reel table position: Standard cassette position
Mode: Unthreading end

Removal/Attachment

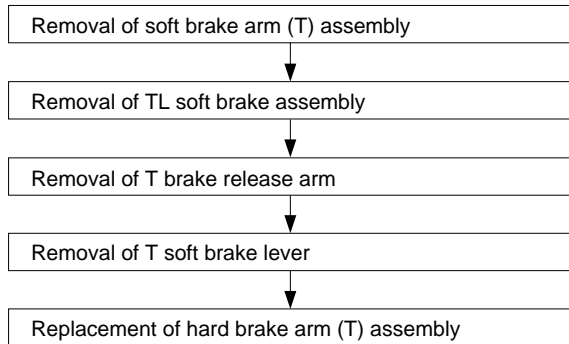
1. Remove the spring shown in the figure.
2. Remove the two stopper washers and remove the TL release lever and TL soft brake assembly.
3. Attach the TL soft brake assembly in the reverse order of steps 1 and 2.



4-9. Replacement of Hard Brake Arm (T) Assembly

Mode: Unthreading end

Replacement Flowchart

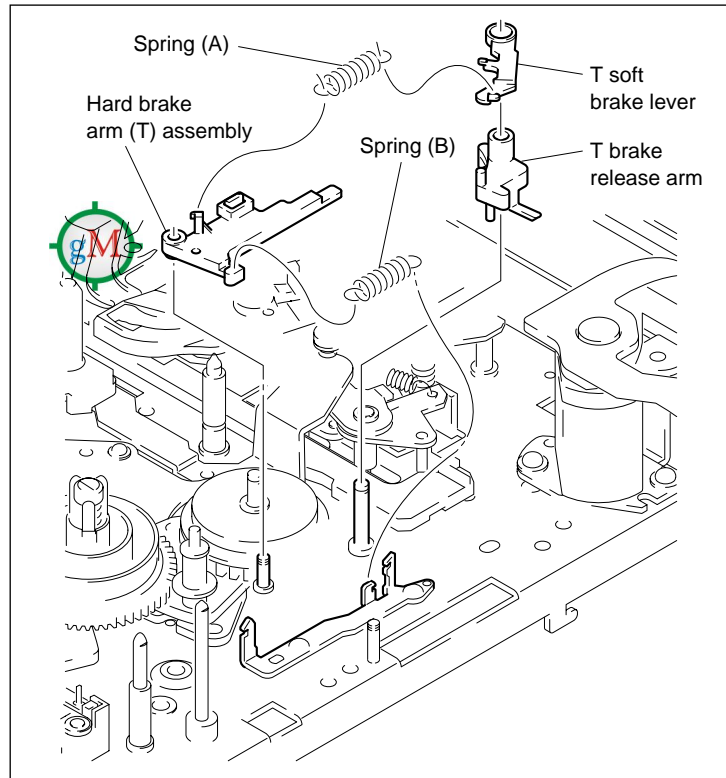


Removal

1. Remove the soft brake arm (T) assembly.
(Refer to Section 4-8-1.)
2. Remove the TL soft brake assembly.
(Refer to Section 4-8-2.)
3. Remove spring (A) and then remove the T soft brake lever.
4. Remove the T brake release arm.
5. Remove the spring (B) shown in the figure, and remove the hard brake arm (T) assembly.

Attachment

6. Attach a new hard brake arm (T) assembly.
7. Attach the removed parts in the reverse order of steps 1 to 4.

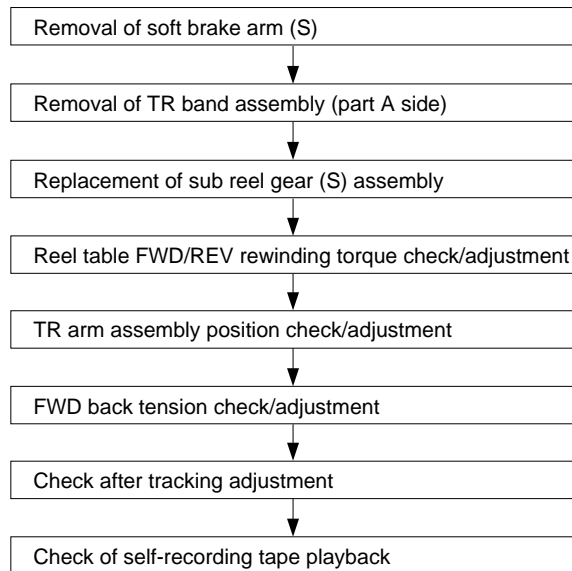


4-10. Replacement of Sub Reel Gear (S) Assembly

Reel table position: Standard cassette position

Mode: Unthreading end

Replacement Flowchart



Removal

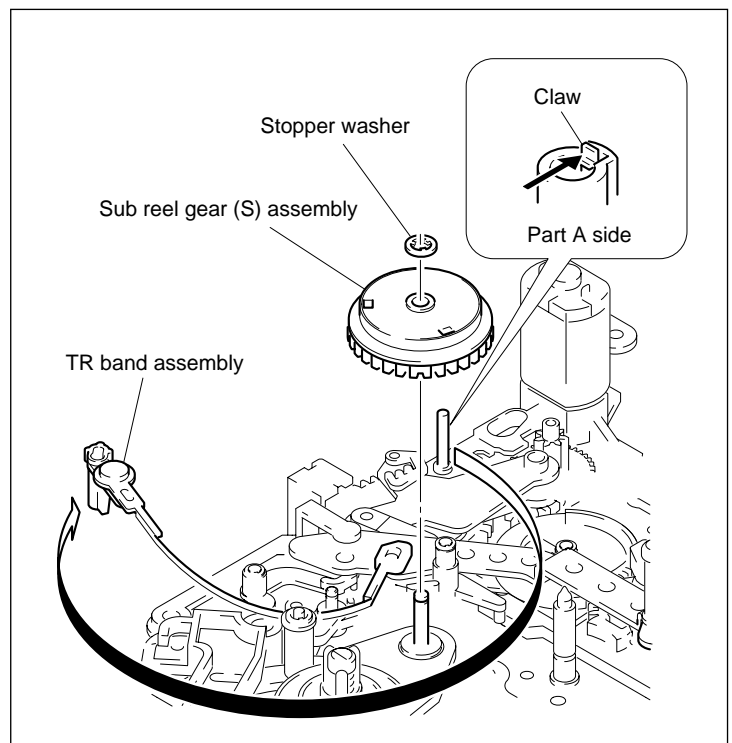
1. Remove the soft brake arm (S).
(Refer to Section 4-6.)
2. Remove the TR band assembly (part A side).
3. Remove the stopper washer shown in the figure, and remove the sub reel gear (S) assembly.

Attachment

4. Attach the new sub reel gear (S) assembly.
5. Attach the removed parts in the reverse order of steps 1 and 2.

Check/Adjustment

6. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-36.)
7. Perform TR arm assembly position check/adjustment. (Refer to Section 4-38.)
8. Perform FWD back tension check/adjustment. (Refer to Section 4-37.)
9. Perform the check after tracking adjustment. (Refer to Section 5-4.)
10. Perform the check of self-recording tape playback. (Refer to Section 5-5.)

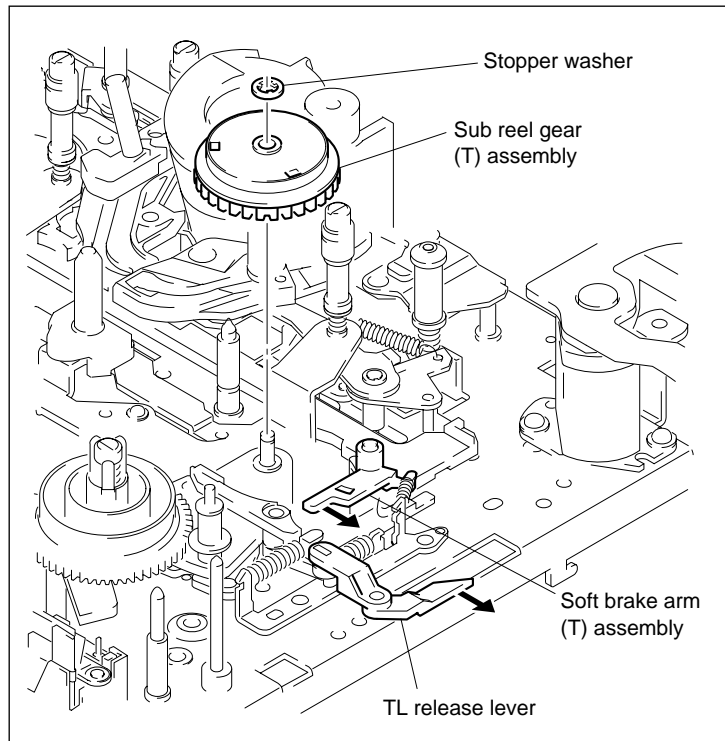


4-11. Replacement of Sub Reel Gear (T) Assembly

Mode: Unthreading end

Removal/Attachment

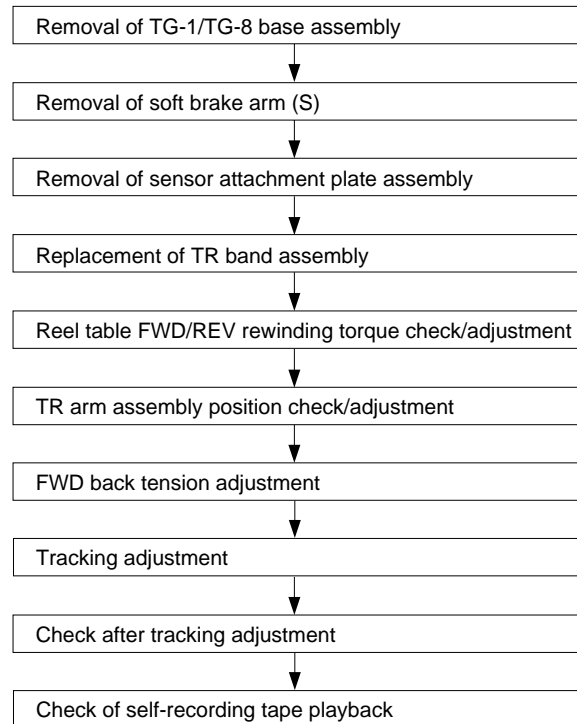
1. Move the soft brake arm (T) assembly and TL release lever shown in the figure in the arrow direction, and remove the stopper washer and sub reel gear (T) assembly.
2. Attach the sub reel gear (T) assembly in the reverse procedure of step 1.



4-12. Replacement of TR Band Assembly

Reel table position: Standard cassette position

Replacement Flowchart



Removal

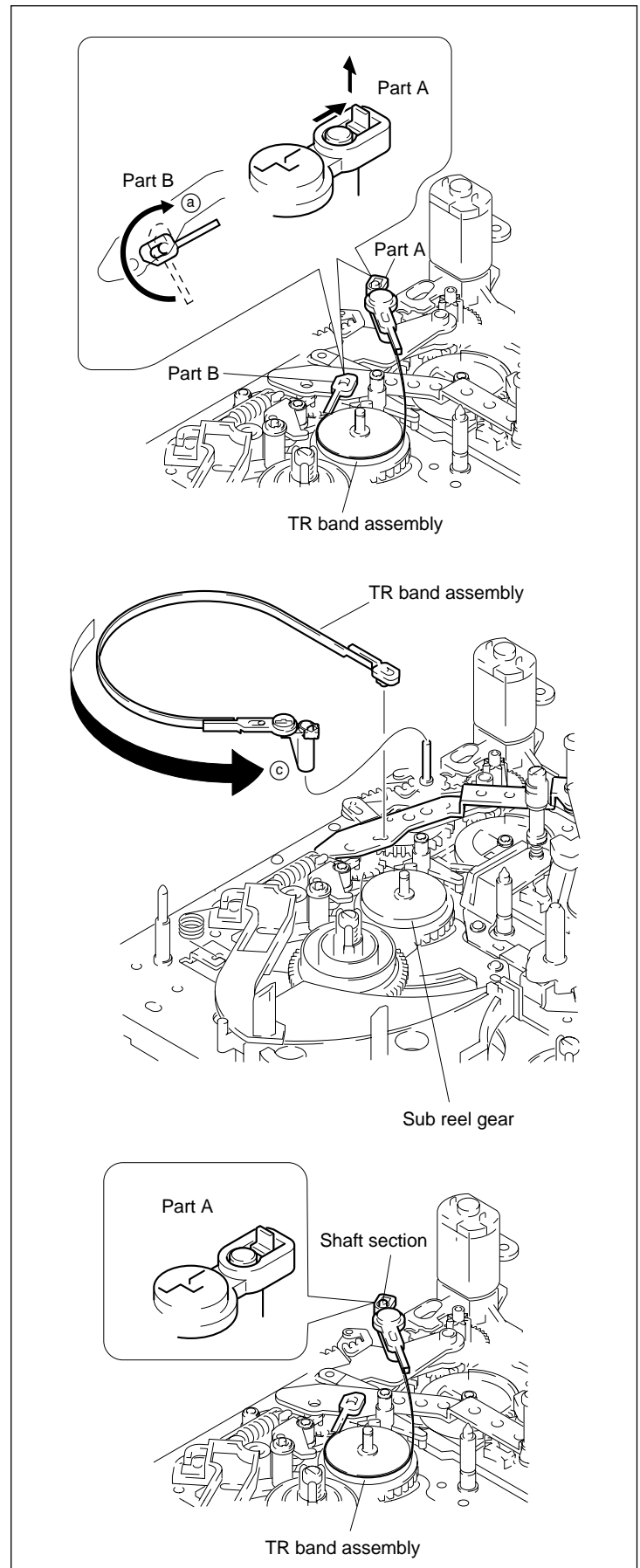
1. Remove the TG-1/TG-8 base assembly. (Refer to Section 4-23.)
2. Set to the unthreading end, and remove the soft brake arm (S). (Refer to Section 4-6.)
3. Remove the sensor attachment plate assembly. (Refer to Section 4-15.)
4. Push part A of the TR band assembly shown in the figure in the arrow direction, and remove it upwards.
5. Set to the threading end, rotate part B of the TR band assembly in arrow direction (a), and remove it from the hole of part B.

Attachment

Note

Do not touch the felt part of the TR band assembly.

6. Insert part B of the new TR band assembly in the hole, rotate it in © direction according to the reverse steps of 4 to hold, and wind it around the sub reel gear.
7. Set the TR band to the unthreading end without scratching it, and insert part A of the TR band assembly into the shaft until it locks.
8. Attach the soft brake arm (S), sensor attachment plate assembly and TG-1/TG-8 base assembly.



Adjustment

9. Perform the reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-36.)
10. Perform the TR arm assembly position check/adjustment. (Refer to Section 4-38.)
11. Perform the FWD back tension check/adjustment. (Refer to Section 4-37.)
12. Perform the tracking adjustment.
(Refer to Section 5-3.)
13. Perform the check after tracking adjustment.
(Refer to Section 5-4.)
14. Perform the check of self-recording tape playback. (Refer to Section 5-5.)

4-13. Replacement of Shift Motor Assembly

The shift motor assembly can be replaced with the cassette compartment attached.

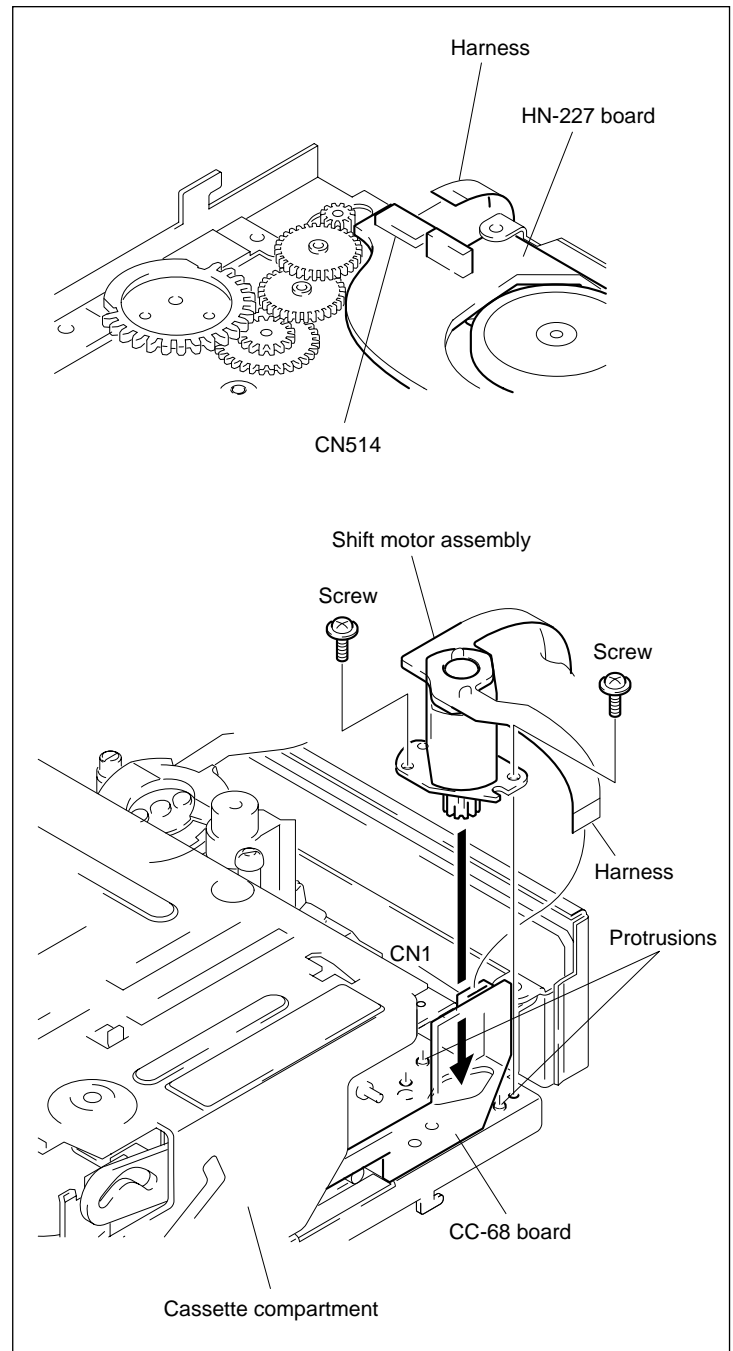
Mode: Unthreading end

Removal

1. Remove the SV-164/213 board.
(Refer to Section 2-10-4.)
2. Pull out the harness from the CN514 connector of the HN-227 board shown in the figure.
3. Pull out the harness from the CN1 connector of the CC-68 board shown in the figure.
4. Remove the two screws and remove the shift motor assembly.

Attachment

5. Adjust the new shift motor to the two protrusions shown in the figure, and secure with the two screws.
6. Attach the harness and SV-164/213 board in the reverse order of steps 1 to 3.



4-14. Replacement of LD Motor Assembly

The components of the LD motor assembly include the worm shaft assembly. This Section explains the LD motor assembly and worm shaft assembly.

Removal

1. Disconnect the connector (CN517) of the LD motor assembly shown in the figure.
2. Remove the two screws, and remove the LD motor assembly.
3. Remove the worm shaft assembly from the motor holder.
4. Attach the new worm shaft assembly to the motor holder so that the gears engage as shown in the figure.
5. Apply grease onto the worm shaft assembly.

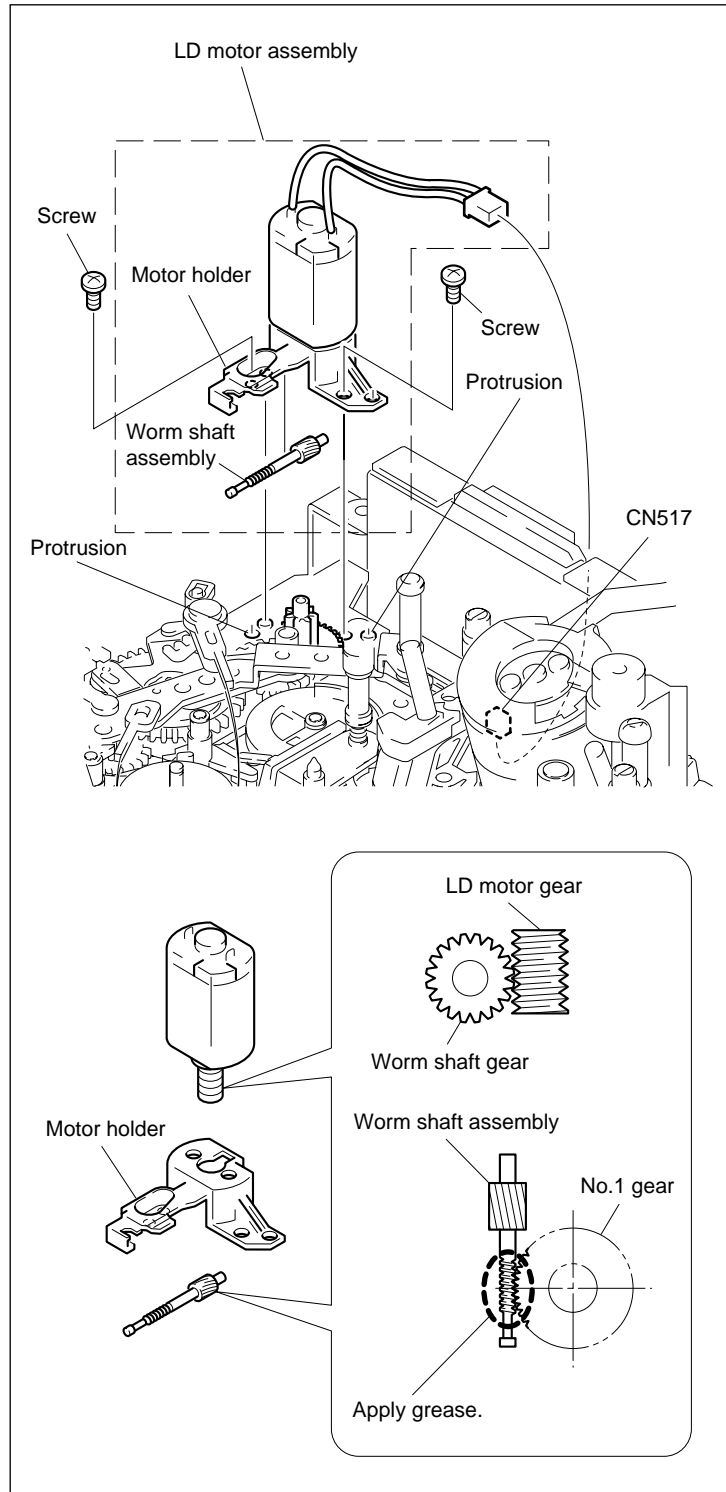
Attachment

6. Attach the new LD motor assembly to the two protrusions shown in the figure, and secure with the two screws.

Note

After attaching, check to see that the worm shaft assembly and No. 1 gear are engaged as shown in the figure. If not, move No.1 gear up and down so that they are engaged correctly.

7. Insert the connector (CN517) of the LD motor assembly into the HN-227 board.



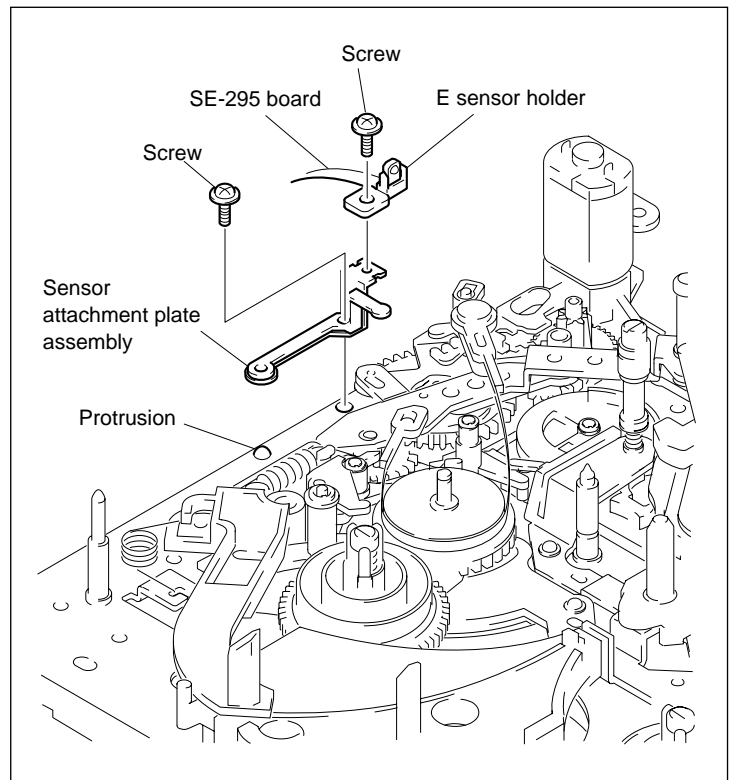
4-15. Replacement of Sensor Attachment Plate Assembly

Removal

1. Remove one screw shown in the figure, and remove the E sensor holder of the SE-295 board.
2. Remove one screw and remove the sensor attachment plate assembly.

Attachment

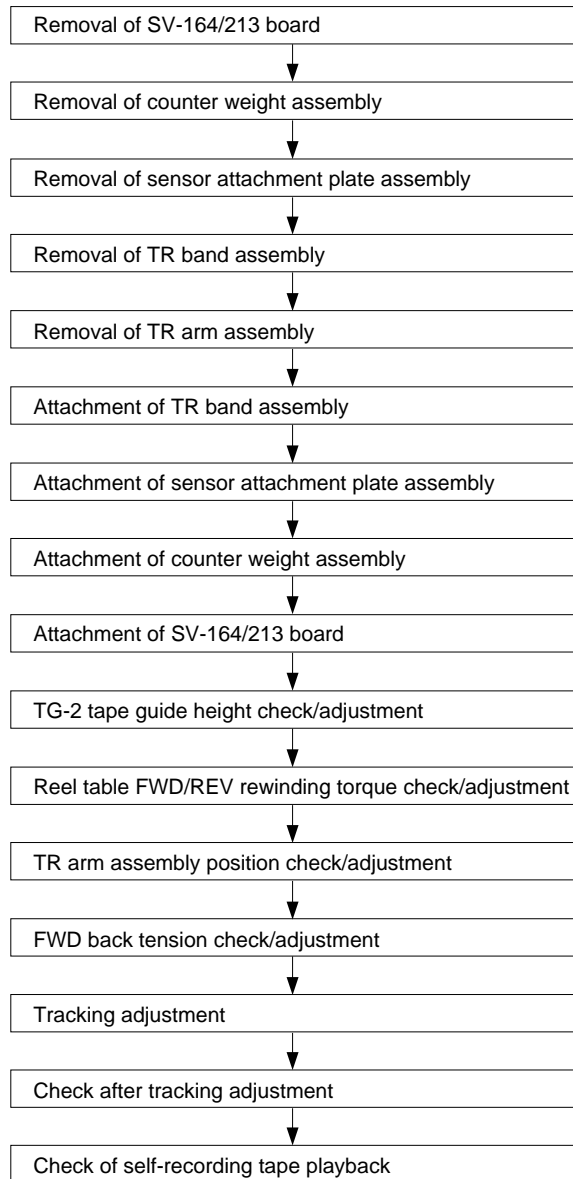
3. Adjust the new sensor attachment plate assembly to the protrusions as shown in figure, and secure with one screw.
4. Attach the E sensor holder in the reverse order of step 1.



4-16. Replacement of TR Arm Assembly

Mode: Threading end

Replacement flowchart



Removal

1. Remove the SV-164/213 board.
(Refer to Section 2-10-4.)
2. Remove the one screw shown in the figure, and remove the counter weight assembly.
3. Remove the sensor attachment plate assembly.
(Refer to Section 4-15.)
4. Remove the TR band assembly.
(Refer to Section 4-12.)
5. Remove the stopper washer of the TR arm assembly, and remove the cap holder.
6. Remove the TR arm assembly.

Note

When removing the TR arm assembly, be sure to hold parts (a) and (b) horizontally, and then pull the TR arm assembly upwards vertically. Not pulling them vertically may cause the following defects.

- 1) Deformation of the crank arm and shaft of the TR arm assembly.
- 2) Scratches on the inside of the bearing of the shaft, and a replacement TR arm assembly can not be attached.

Attachment

7. Insert Pin C of the TR arm assembly into the cam groove of the mode gear in the reverse order of steps 1 to 6, and insert the shaft into the bearing.

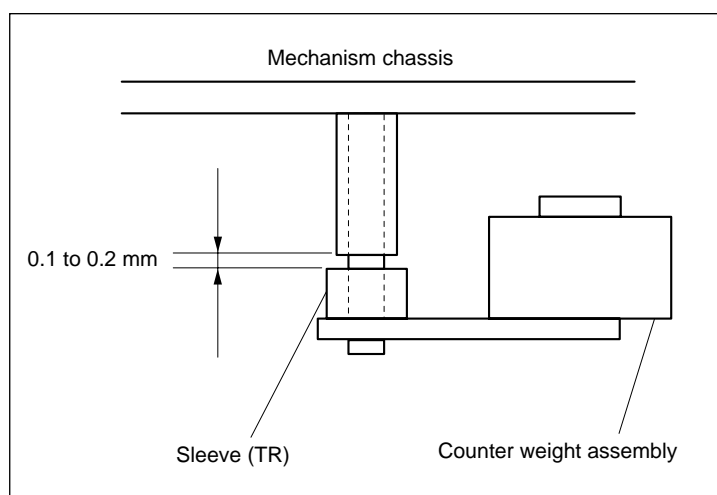
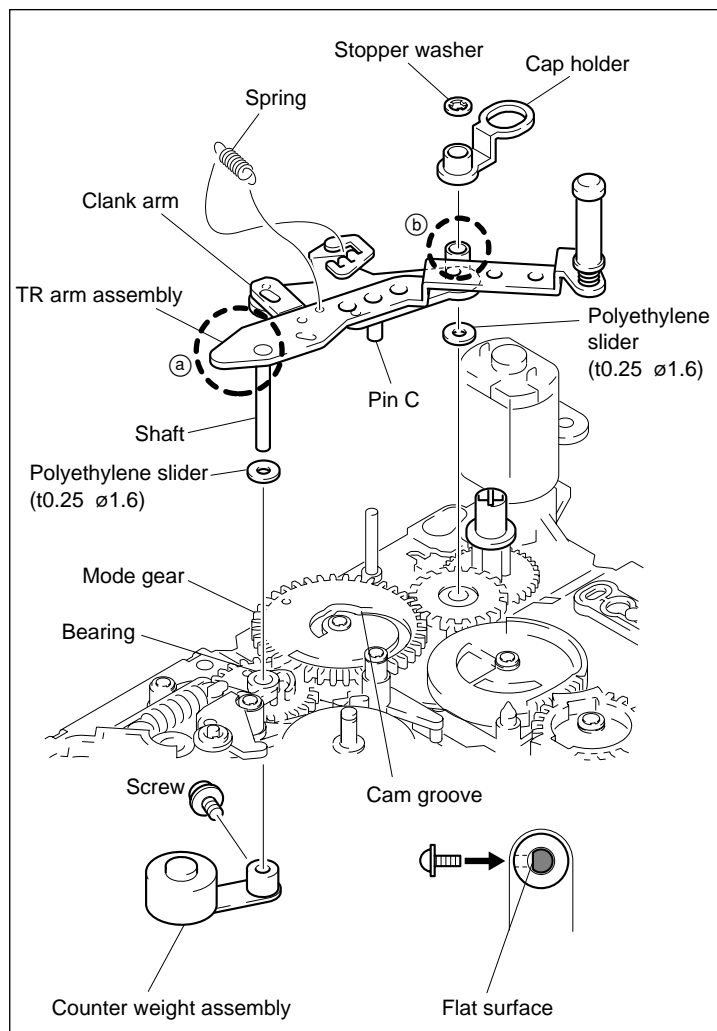
Note

When attaching the counter weight assembly to the shaft of the TR arm assembly, take note of the following.

- 1) Tighten the attaching screw at the flat part of the shaft of the TR arm assembly.
- 2) Attach so that there is a clearance of 0.1 to 0.2 mm from the sleeve (TR).
8. Attach the SV-164/213 board.
(Refer to Section 2-10-4.)

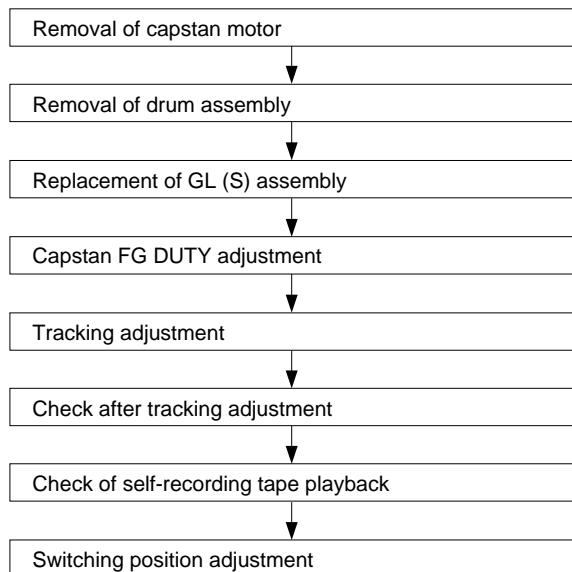
Check/Adjustment

9. Perform TG-2 tape guide height check/adjustment. (Refer to Section 4-35.)
10. Perform the reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-36.)
11. Perform the TR arm assembly position check/adjustment. (Refer to Section 4-38.)
12. Perform FWD back tension check/adjustment. (Refer to Section 4-37.)
13. Perform the tracking adjustment.
(Refer to Section 5-3.)
14. Perform the check after tracking adjustment.
(Refer to Section 5-4.)
15. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



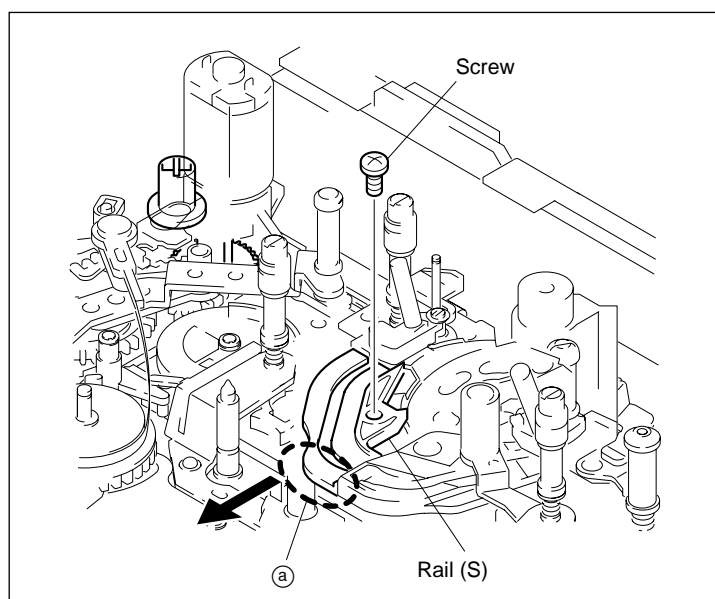
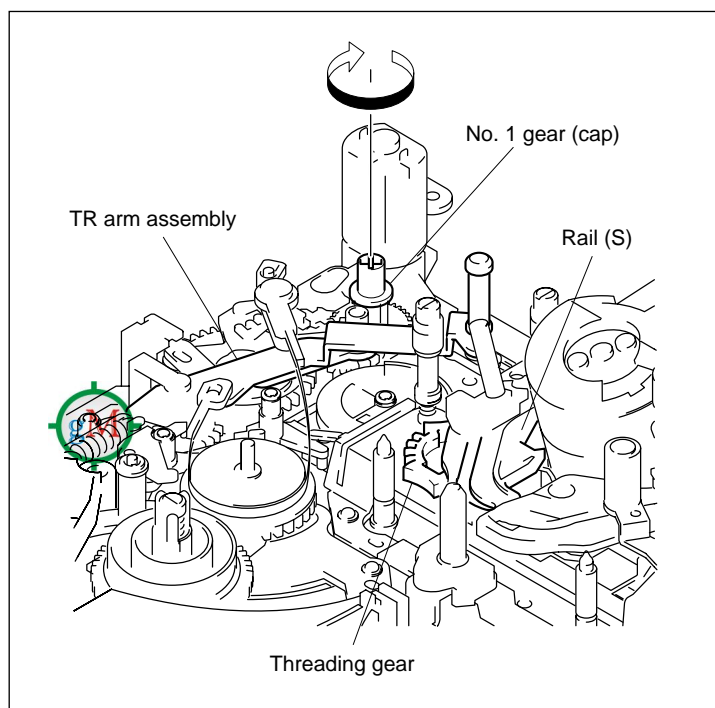
4-17. Replacement of GL (S) Assembly

Replacement Flowchart

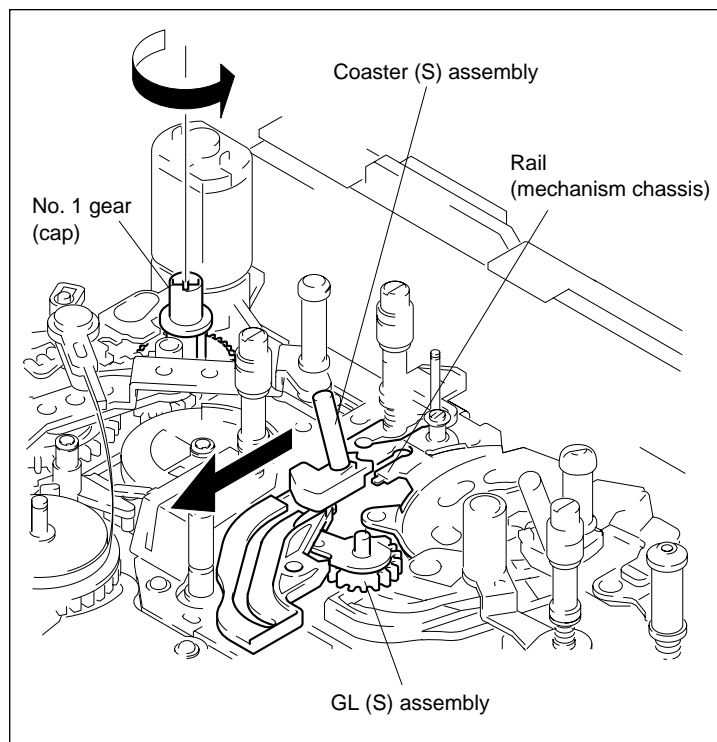


Removal

1. Remove the capstan motor.
(Refer to Section 4-28.)
2. Remove the drum assembly.
(Refer to Section 4-3.)
3. Rotate the No.1 gear in the clockwise direction until the TR arm assembly separates from rail (S).
(S).
4. Remove the screw attaching rail (S), and remove it by holding the (a) part and sliding it in the arrow direction.

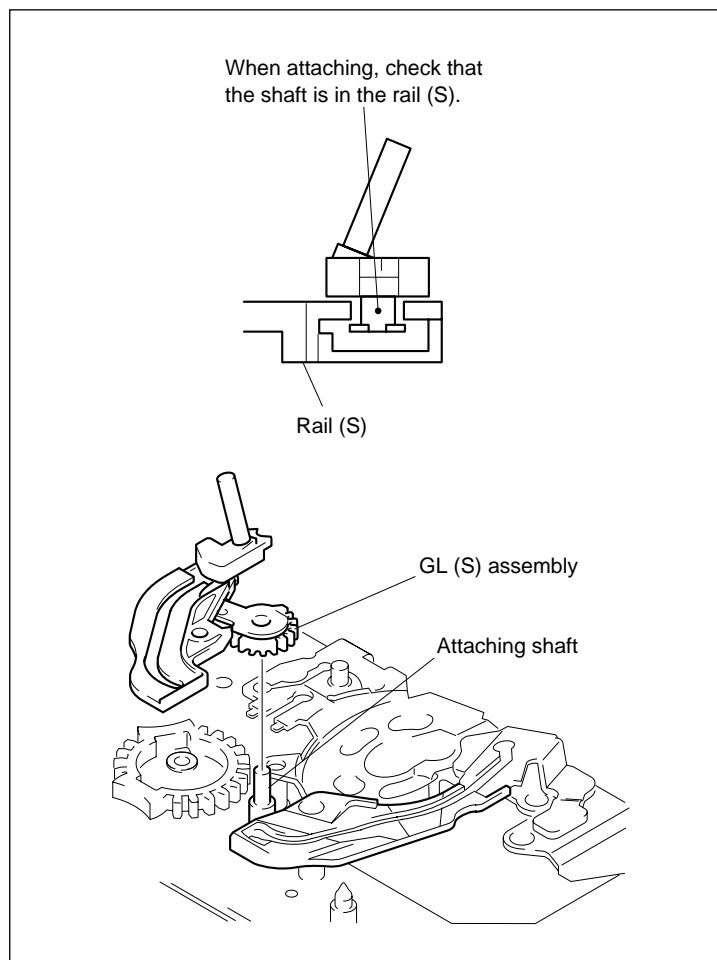


5. Rotate the No.1 gear in the counterclockwise direction, and remove the coaster (S) assembly and GL (S) assembly from the rail (mechanism chassis).



Attachment

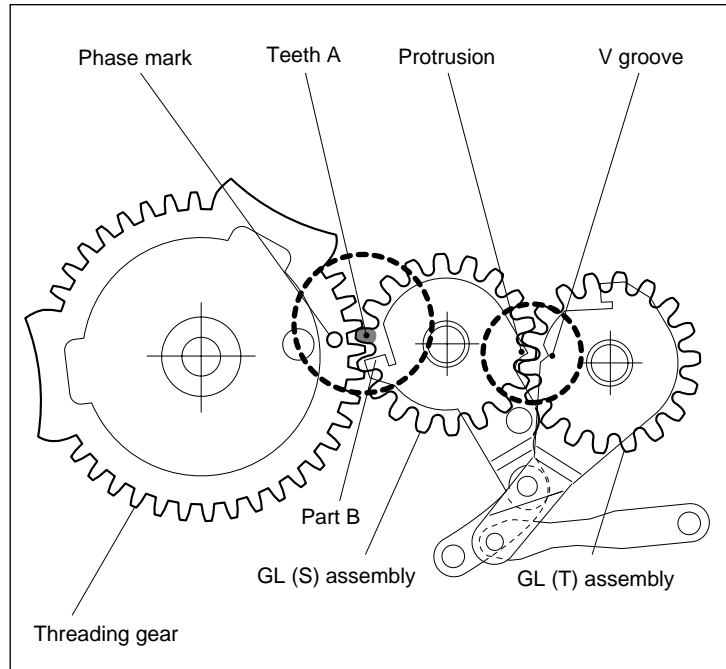
6. Attach the coaster (S) assembly to the groove of the rail (S), and then attach the GL (S) assembly.



7. Attach the GL (S) assembly to the attaching shaft.

Note

Adjust the protrusion of the GL (S) assembly to the V groove of the GL (T) assembly as shown in the figure, and attach the threading gear so that the phase mark of the threading gear and teeth A next to part B match.



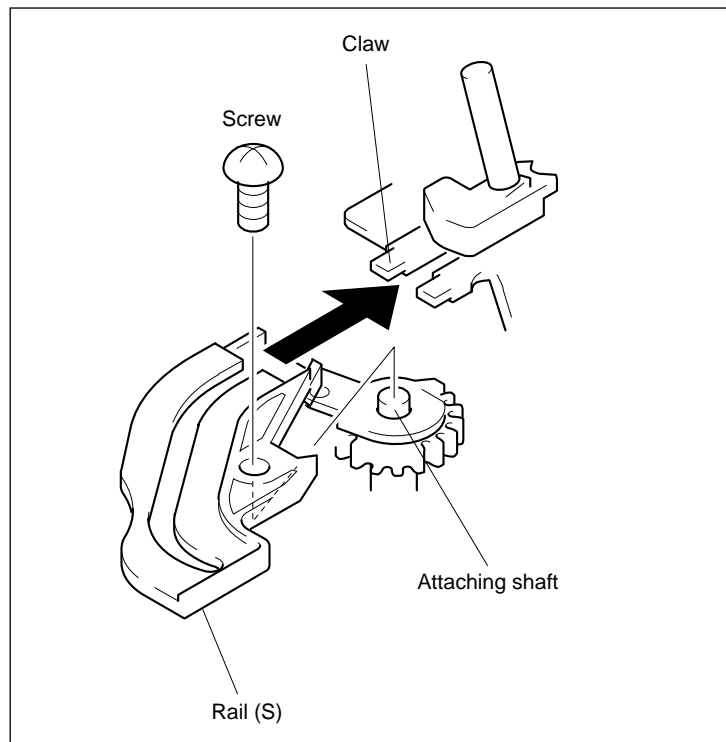
8. Attach rail (S) first from the claw and then the attaching shaft, and tighten the screw.

- Tightening torque: 0.0588 N•m (0.6 kg•cm)

9. Attach the capstan motor and drum assembly in the reverse order of steps 1 and 2.

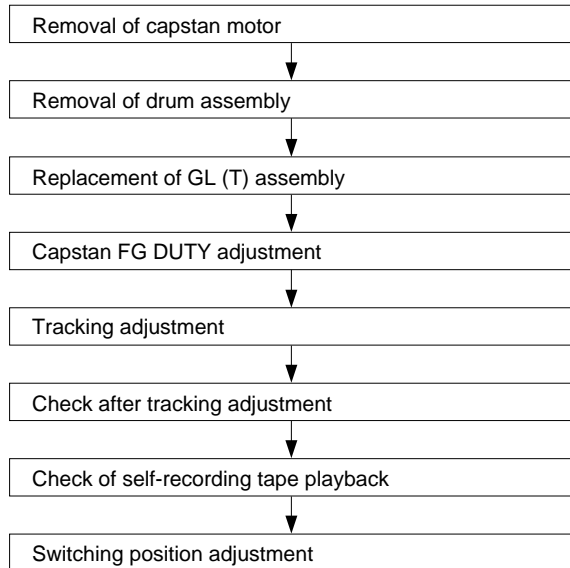
Check/Adjustment

10. Perform the capstan FG DUTY adjustment at Menu M601. (Refer to Section 9-1.)
11. Perform the tracking adjustment. (Refer to Section 5-3.)
12. Perform the check after tracking adjustment. (Refer to Section 5-4.)
13. Perform the check of self-recording tape playback. (Refer to Section 5-5.)
14. Perform the switching position adjustment at Menu M605. (Refer to Section 5-6.)



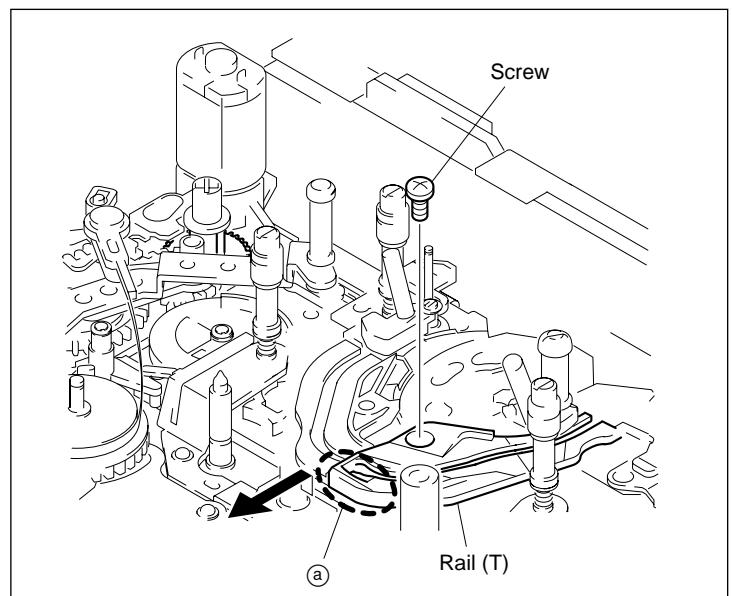
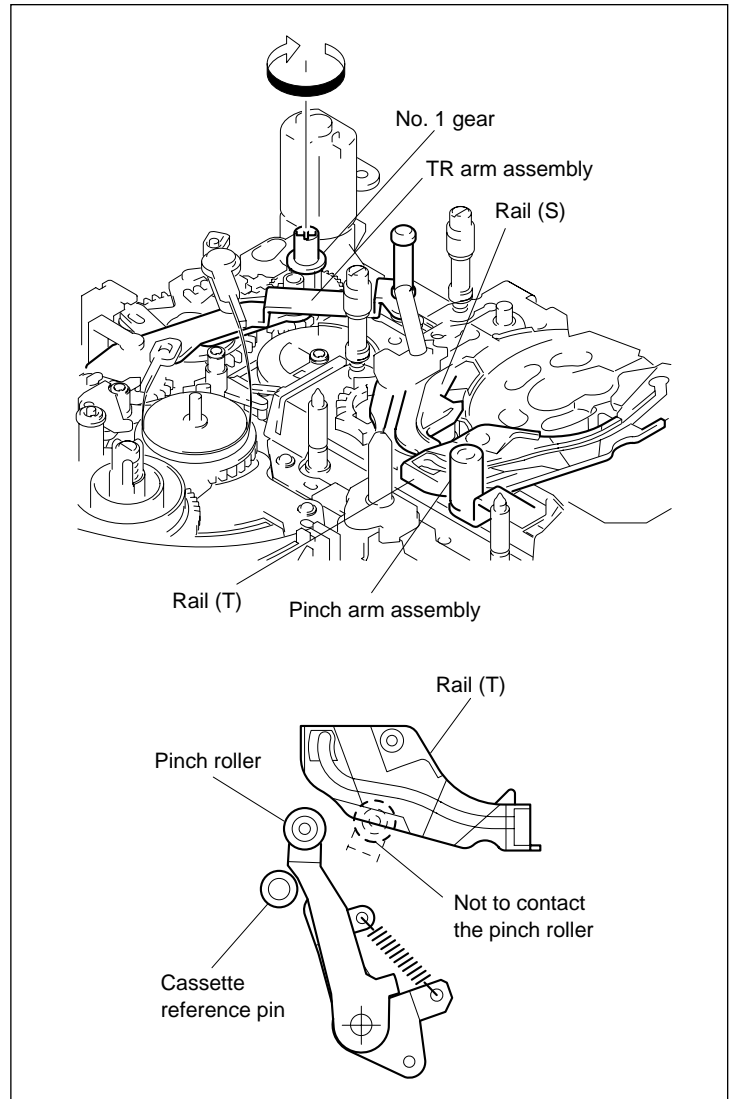
4-18. Replacement of GL (T) Assembly

Replacement Flowchart

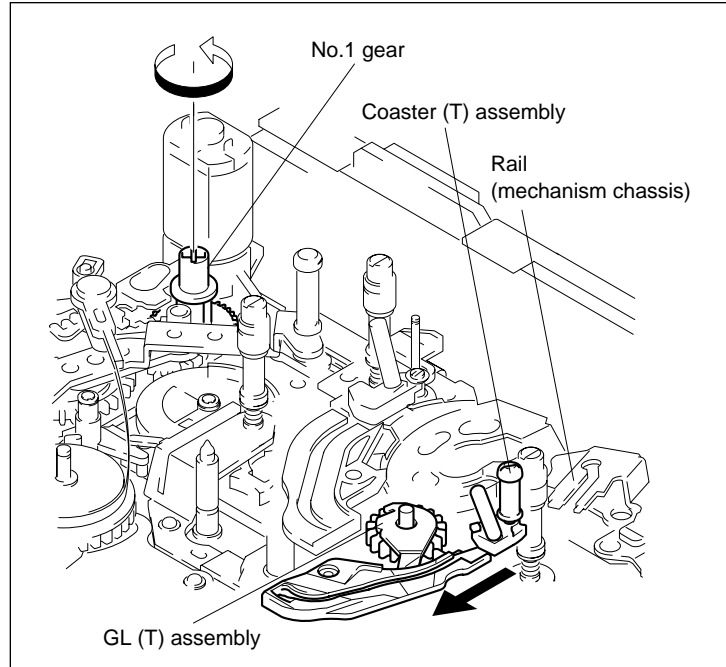


Removal

1. Remove the capstan motor.
(Refer to Section 4-28.)
2. Remove the drum assembly.
(Refer to Section 4-3.)
3. Rotate the No.1 gear in the clockwise direction, and remove the TR arm assembly from rail (S). Make sure that the pinch roller is not in contact with rail (T).
4. Remove the screw attaching rail (T), lift up part a and slide it in the arrow direction and remove rail (T).

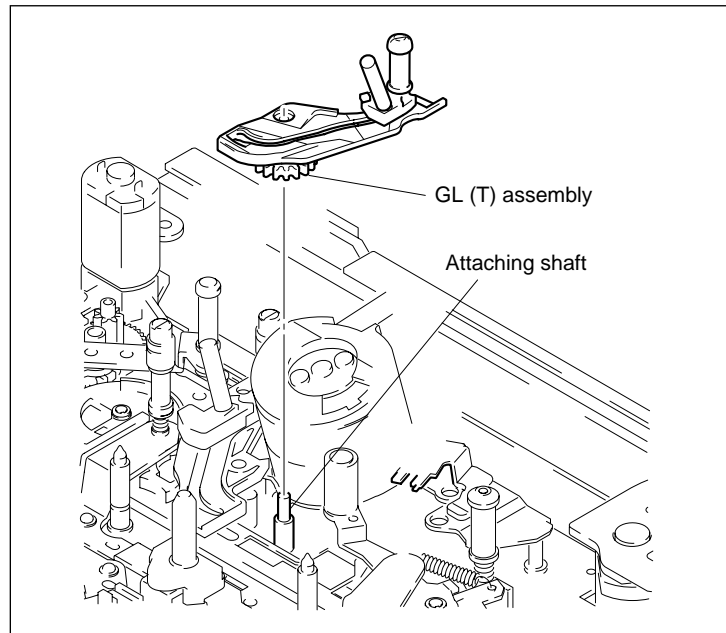


5. Rotate the No.1 gear in the counterclockwise direction, and remove the coaster (T) assembly and GL (T) assembly from the rail (mechanism chassis).



Attachment

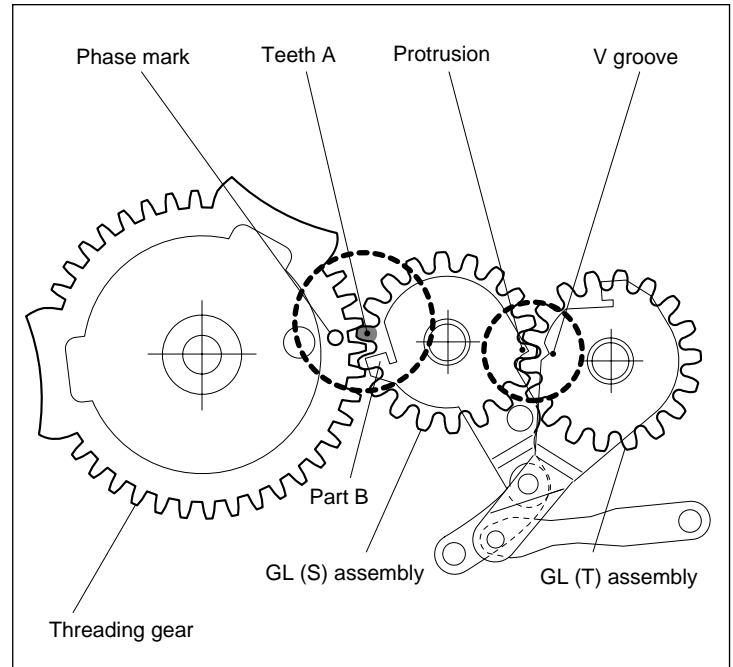
6. Attach the coaster (T) assembly to the groove of rail (T), and then attach the GL (T) assembly.



7. Attach the GL (T) assembly to the attaching shaft.

Note

Adjust the protrusion of the GL (S) assembly to the V groove of the GL (T) assembly as shown in the figure, and attach the threading gear so that the phase mark of the threading gear and teeth A next to part B match.



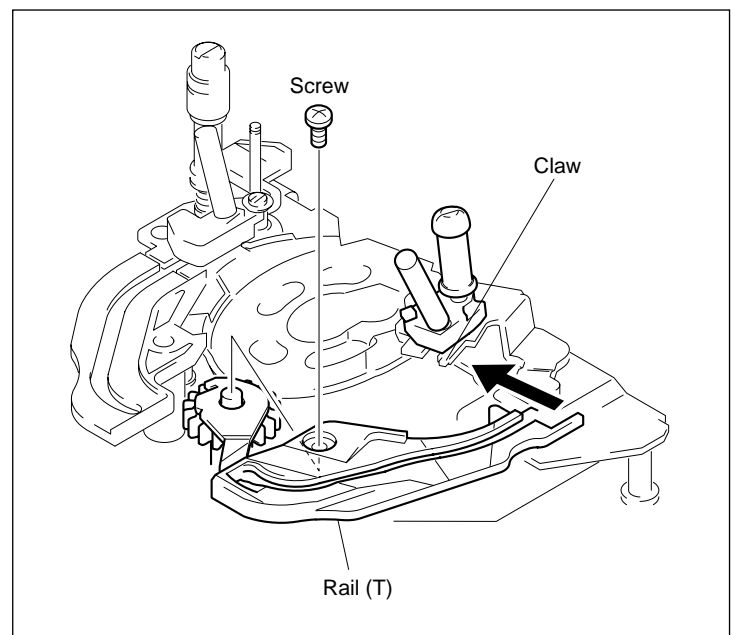
8. Attach rail (T) first from the claw and then the attaching shaft, and tighten the screw.

- Tightening torque: 0.0588 N.m (0.6 kg.cm)

9. Attach the capstan motor and drum assembly in the reverse order of steps 1 and 2.

Check/Adjustment

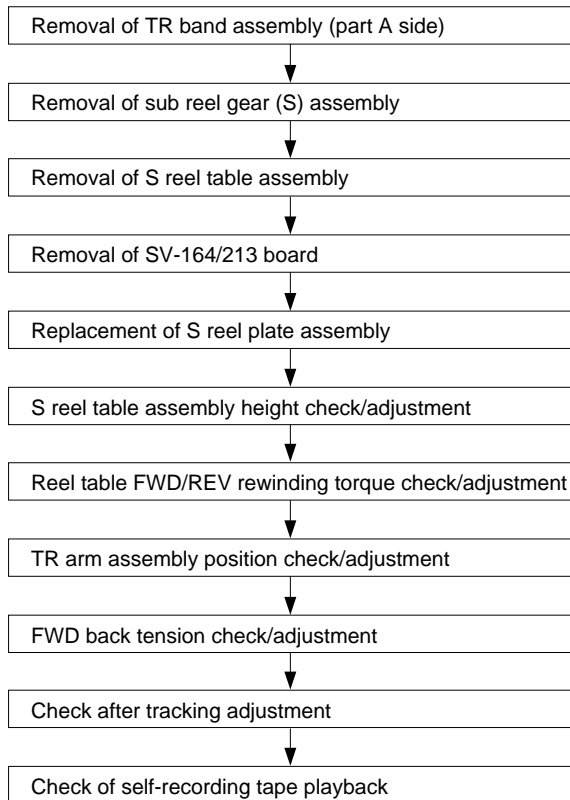
10. Perform the capstan FG DUTY adjustment at Menu M601. (Refer to Section 9-1.)
11. Perform the tracking adjustment. (Refer to Section 5-3.)
12. Perform the check after tracking adjustment. (Refer to Section 5-4.)
13. Perform the check of self-recording tape playback. (Refer to Section 5-5.)
14. Perform the switching position adjustment at Menu M605. (Refer to Section 5-6.)



4-19. Replacement of S Reel Plate Assembly

Reel table position: Standard cassette position

Replacement Flowchart



Removal

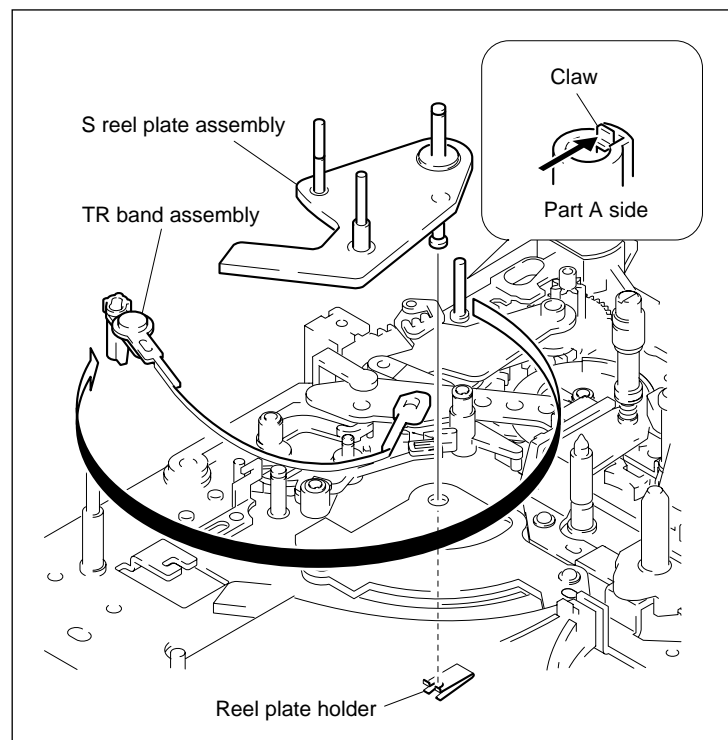
1. Remove the TR band assembly (part A side).
2. Remove the sub reel gear (S) assembly.
(Refer to Section 4-10.)
3. Remove the S reel table assembly.
(Refer to Section 4-4.)
4. Remove the SV-164/213 board.
(Refer to Section 2-10-4.)
5. Remove the reel plate holder shown in the figure, and remove the S reel plate assembly.

Attachment

6. Attach the new S reel plate assembly in the reverse order of step 5.
7. Attach the parts removed in the reverse order of steps 1 to 4.

Check/Adjustment

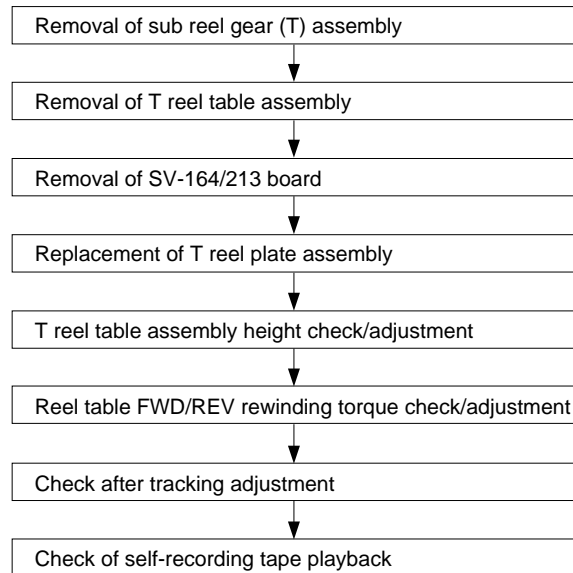
8. Perform S reel table height check/adjustment.
(Refer to Section 4-34.)
9. Perform the reel table assembly FWD/REV rewinding torque check/adjustment.
(Refer to Section 4-36.)
10. Perform TR arm assembly position check/adjustment.
(Refer to Section 4-38.)
11. Perform the FWD back tension check/adjustment.
(Refer to Section 4-37.)
12. Perform the check after tracking adjustment.
(Refer to Section 5-4.)
13. Perform the check of self-recording tape playback.
(Refer to Section 5-5.)



4-20. Replacement of T Reel Plate Assembly

Reel table position: Standard cassette position

Replacement Flowchart



Removal

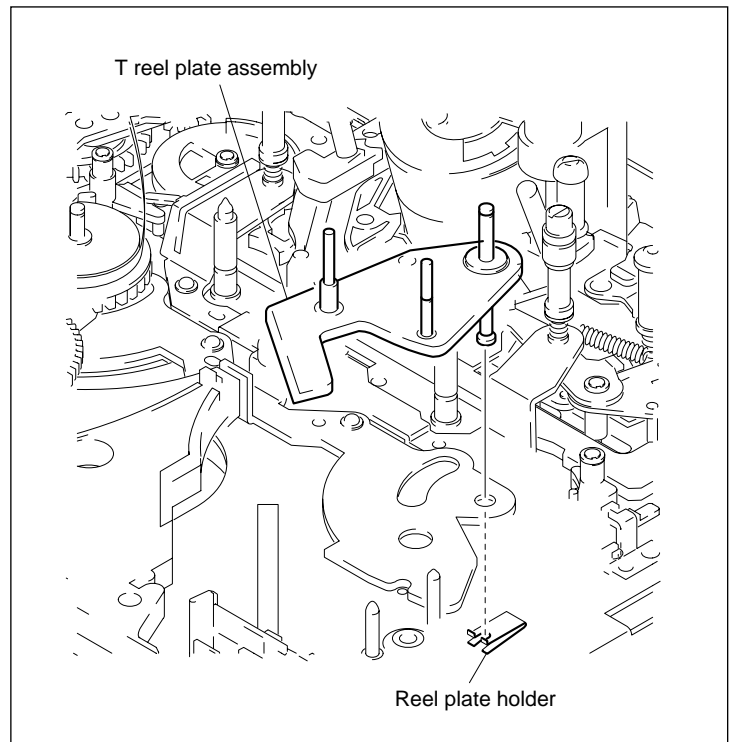
1. Remove the sub reel gear (T) assembly.
(Refer to Section 4-11.)
2. Remove the T reel table assembly.
(Refer to Section 4-5.)
3. Remove the SV-164/213 board.
(Refer to Section 2-10-4.)
4. Remove the reel plate holder shown in the figure, and remove the T reel plate assembly.

Attachment

5. Attach the new T reel plate assembly in the reverse order of step 4.
6. Attach the parts removed in the reverse order of steps 1 to 3.

Check/Adjustment

7. Perform T reel table assembly height check/adjustment. (Refer to Section 4-34.)
8. Perform the reel table FWD/REV rewinding torque check/adjustment.
(Refer to Section 4-36.)
9. Perform the check after tracking adjustment.
(Refer to Section 5-4.)
10. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



4-21. Replacement of C Assembly

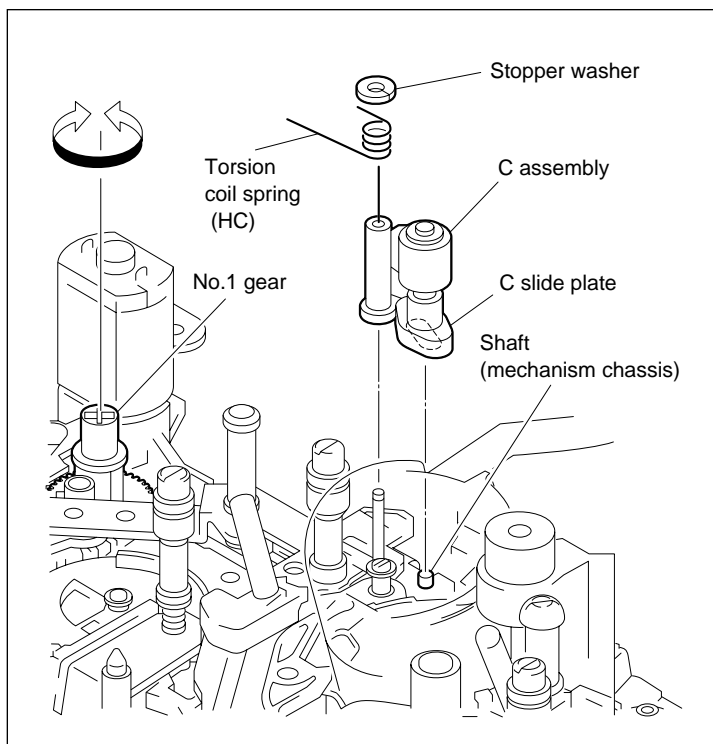
Removal/Attachment

1. Remove the stopper washer shown in the figure, and remove the C assembly and torsion coil spring (HC).
2. Attach the new C assembly and torsion coil spring (HC) with the stopper washer.

Note

When attaching, check that the shaft of the mechanism chassis is inserted into the long hole of the C slide plate.

3. Rotate the No.1 gear, and check that the C assembly moves to the left and right.



4-22. Replacement of Pinch Arm Assembly

Reel table position: Standard cassette position

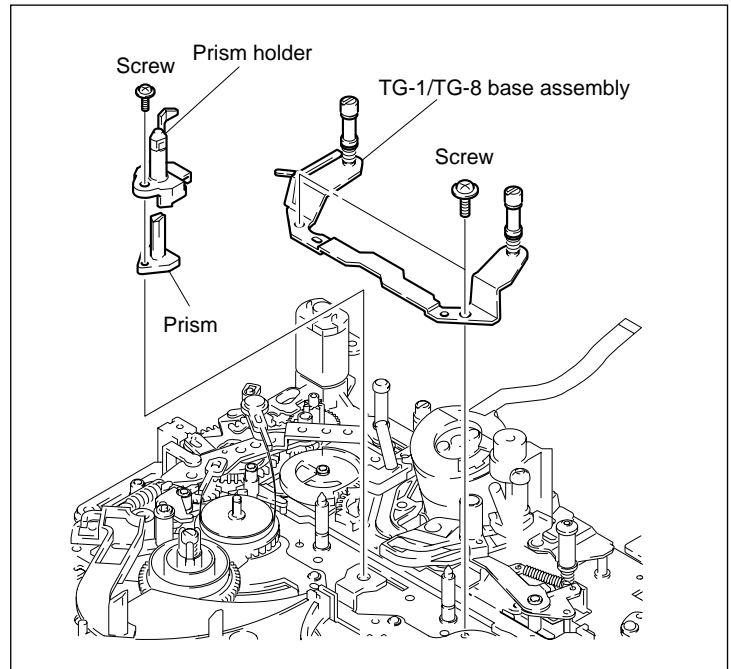
Mode: Unthreading end

Removal

1. Remove one screw shown in the figure, and remove the prism holder and prism.
2. Check that the S reel table and T reel table are at the standard cassette position, and remove the two screws shown in the figure, and remove the TG-1/TG-8 base assembly.

Note

When removing the TG-1/TG-8 base assembly, hold the base instead of the guide.



3. Remove the stopper washer, and remove the pinch arm assembly and torsion coil spring (pinch).

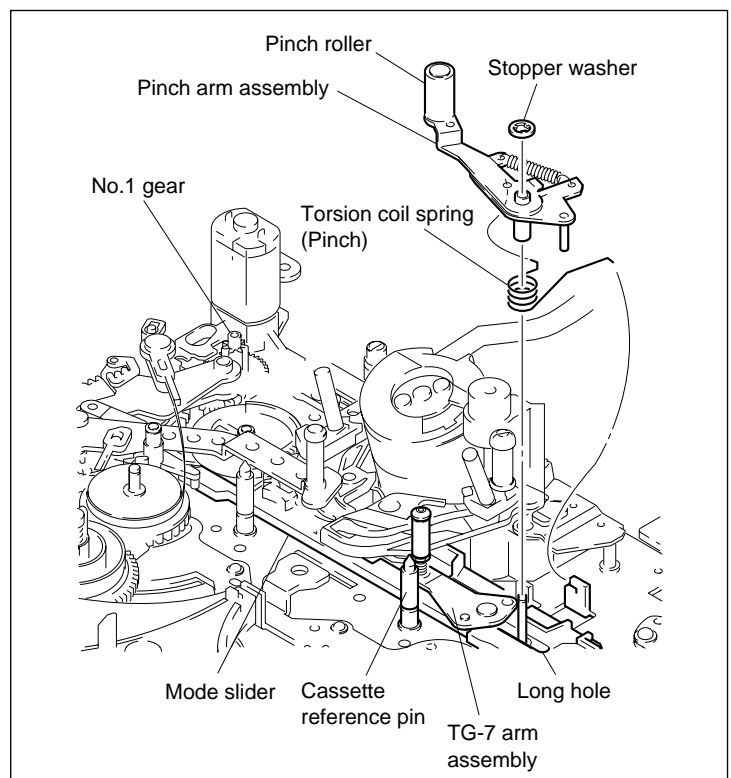
Attachment

4. Set the new pinch arm assembly between the cassette reference pin and TG-7 arm assembly, and attach it to the unit with the torsion coil spring (pinch) using the stopper washer.

Note

When attaching, never touch the pinch roller.

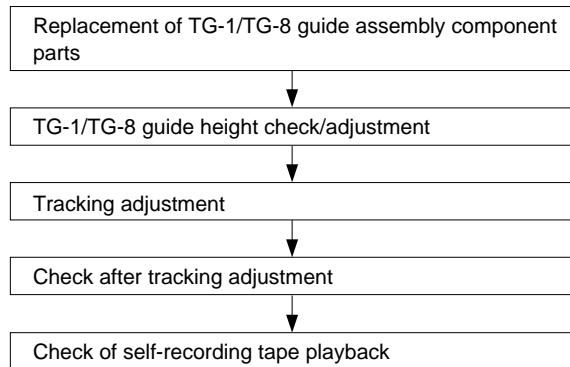
5. Attach the parts removed in the reverse order of steps 1 to 3.
6. Rotate the No.1 gear in the clockwise and counterclockwise direction, and check that the pinch arm moves smoothly.
7. Perform TG-1/TG-8 tape guide height check/adjustment. (Refer to Section 4-35.)
8. Perform the check after tracking adjustment. (Refer to Section 5-4.)
9. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



4-23. Replacement of TG-1/TG-8 Guide Assembly Component Parts

The TG-1 guide assembly and TG-8 guide assembly component parts can be replaced in the same way. This Section explains how to replace the TG-1 guide assembly component parts.

Replacement Flowchart



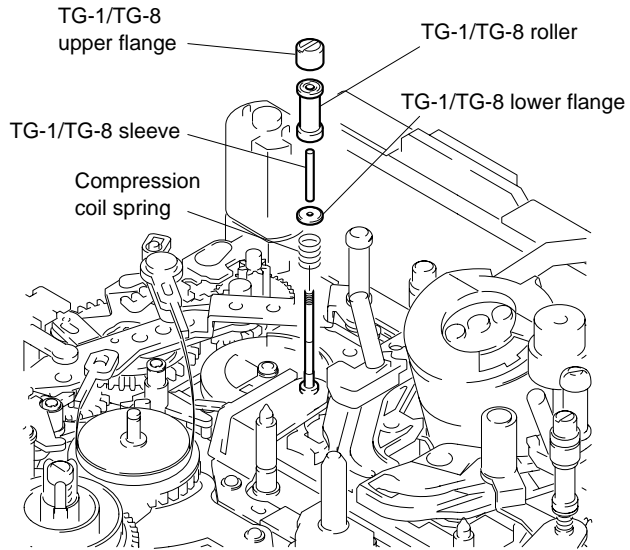
Removal/Attachment

1. Rotate the guide upper flange shown in the figure in the counterclockwise direction, and remove the TG-1 guide assembly component parts.
2. Replace the required parts, and attach the component parts in the reverse order of step 1.
3. Perform TG-1 guide height check / adjustment. (Refer to Section 4-35.)

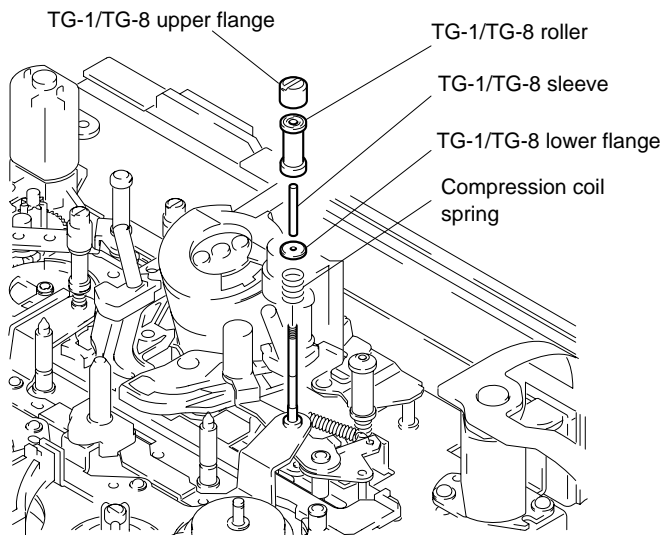
Check/Adjustment

4. Perform the tracking adjustment. (Refer to Section 5-3.)
5. Perform the check after tracking adjustment. (Refer to Section 5-4.)
6. Perform the check of self-recording tape playback. (Refer to Section 5-5.)

TG-1 guide assembly component parts

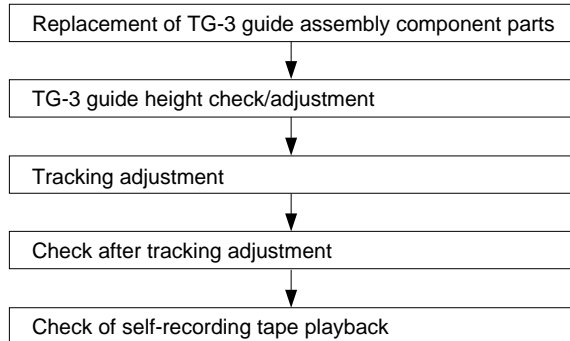


TG-8 guide assembly component parts



4-24. Replacement of TG-3 Guide Assembly Component Parts

Replacement Flowchart

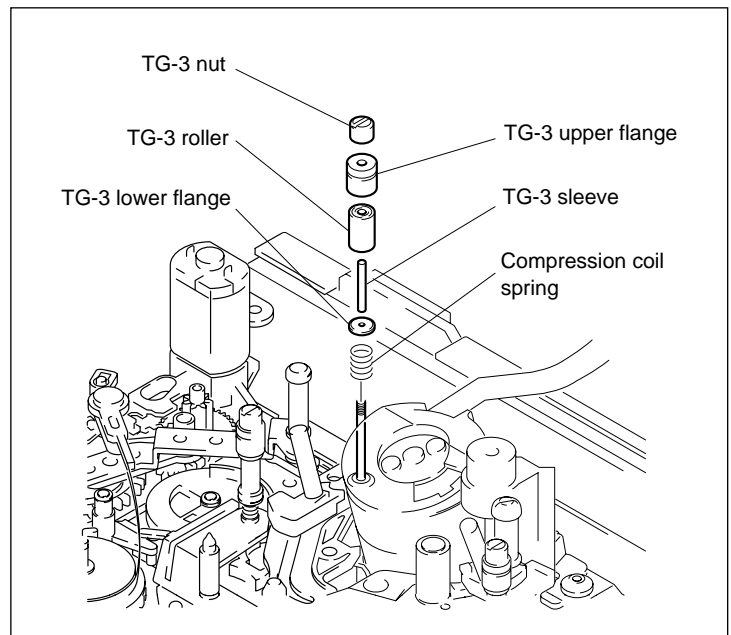


Removal/Attachment

1. Rotate the guide upper flange shown in the figure in the counterclockwise direction, and remove the TG-3 guide assembly component parts.
2. Replace the required parts, and attach the component parts in the reverse order of step 1.

Check/Adjustment

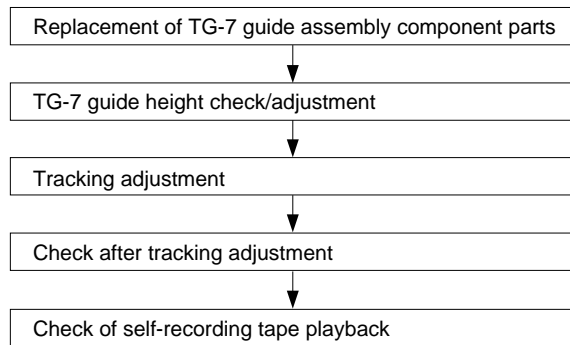
3. Perform TG-3 guide height check adjustment. (Refer to Section 4-35.)
4. Perform the tracking adjustment. (Refer to Section 5-3.)
5. Perform the check after tracking adjustment. (Refer to Section 5-4.)
6. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



4-25. Replacement of TG-7 Guide Assembly Component Parts

Mode: Threading end

Replacement Flowchart

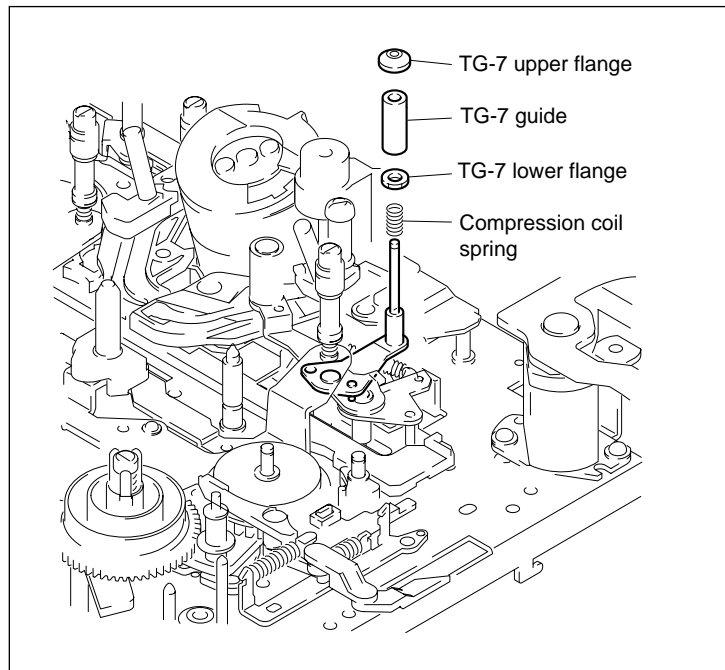


Removal/Attachment

1. Rotate the TG-7 upper flange shown in the figure in the counterclockwise direction, and remove the TG-7 guide assembly component parts.
2. Replace the required parts, and attach the component parts in the reverse order of step 1.

Check/Adjustment

3. Perform TG-7 guide height check/adjustment. (Refer to Section 4-35.)
4. Perform the tracking adjustment. (Refer to Section 5-3.)
5. Perform the check after tracking adjustment. (Refer to Section 5-4.)
6. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



4-26. Replacement of Idler Gear Assembly

Reel table position: Standard cassette position

Mode: Threading end

Removal

1. Remove the reel lock pressing spring and stopper washer shown in the figure, and remove the reel lock arm.

2. While pushing in the two claws in the arrow direction, remove the reel lock cover.

Note

When the reel lock cover is removed, gear D and the compression coil spring will also be removed with it. Be careful not to lose them.

3. Remove the stopper washer shown in the figure, and remove the idler gear assembly.

Note

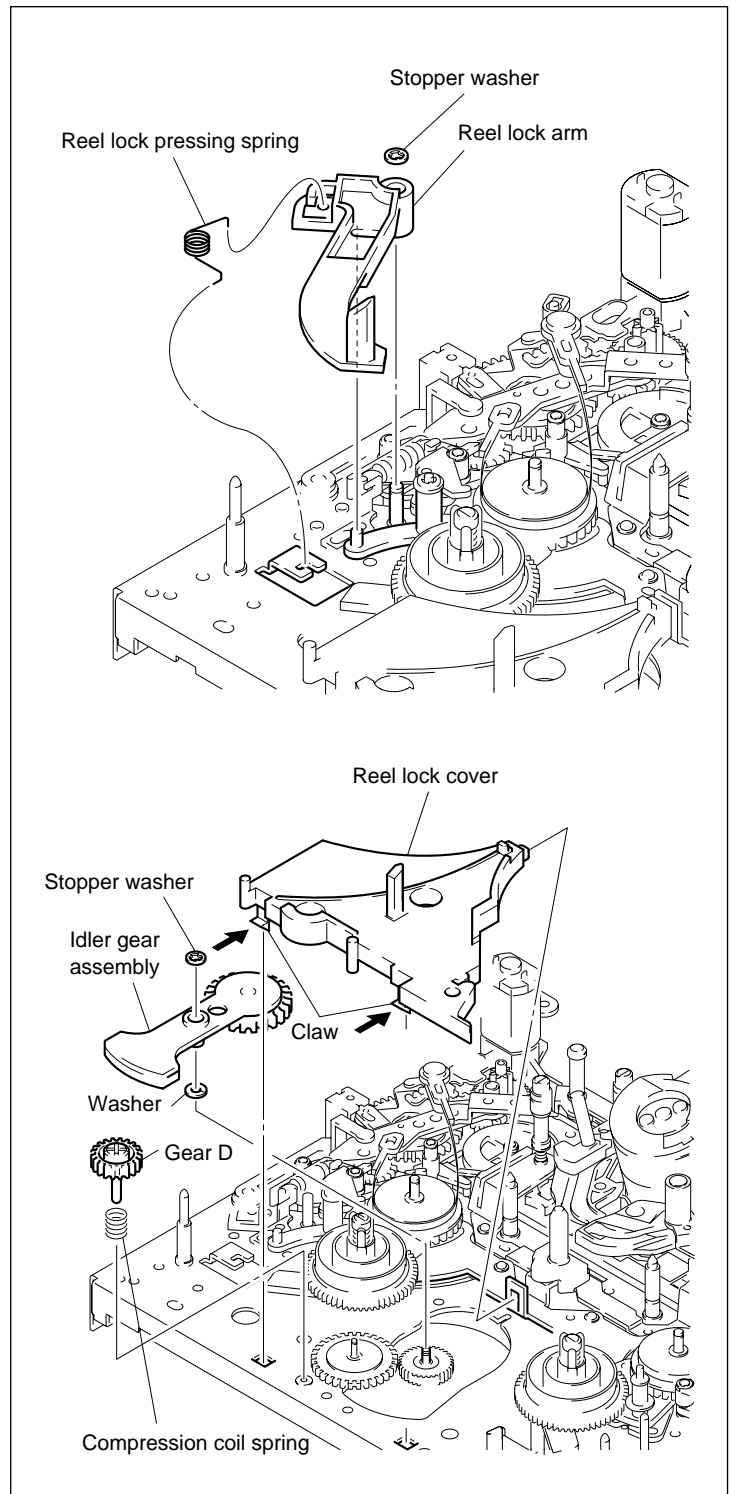
When the idler gear assembly is removed, the washer shown in the figure will also be removed with it. Be careful not to lose the washer.

Attachment

4. Attach the new idler gear assembly in the reverse order of step 3.
5. Attach the parts removed in the reverse order of steps 1 and 2.

Check/Adjustment

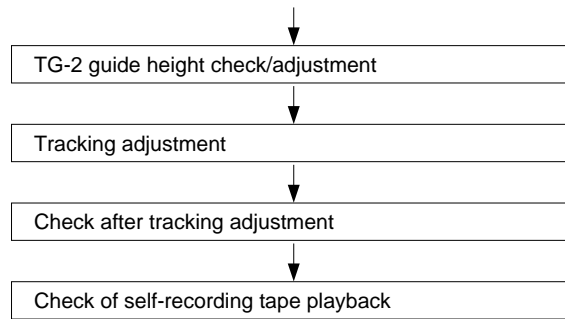
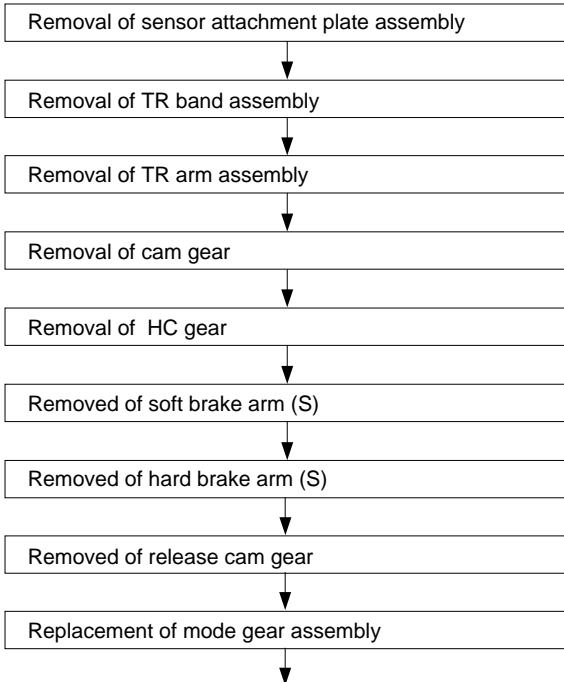
6. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-36.)



4-27. Replacement of Mode Gear Assembly

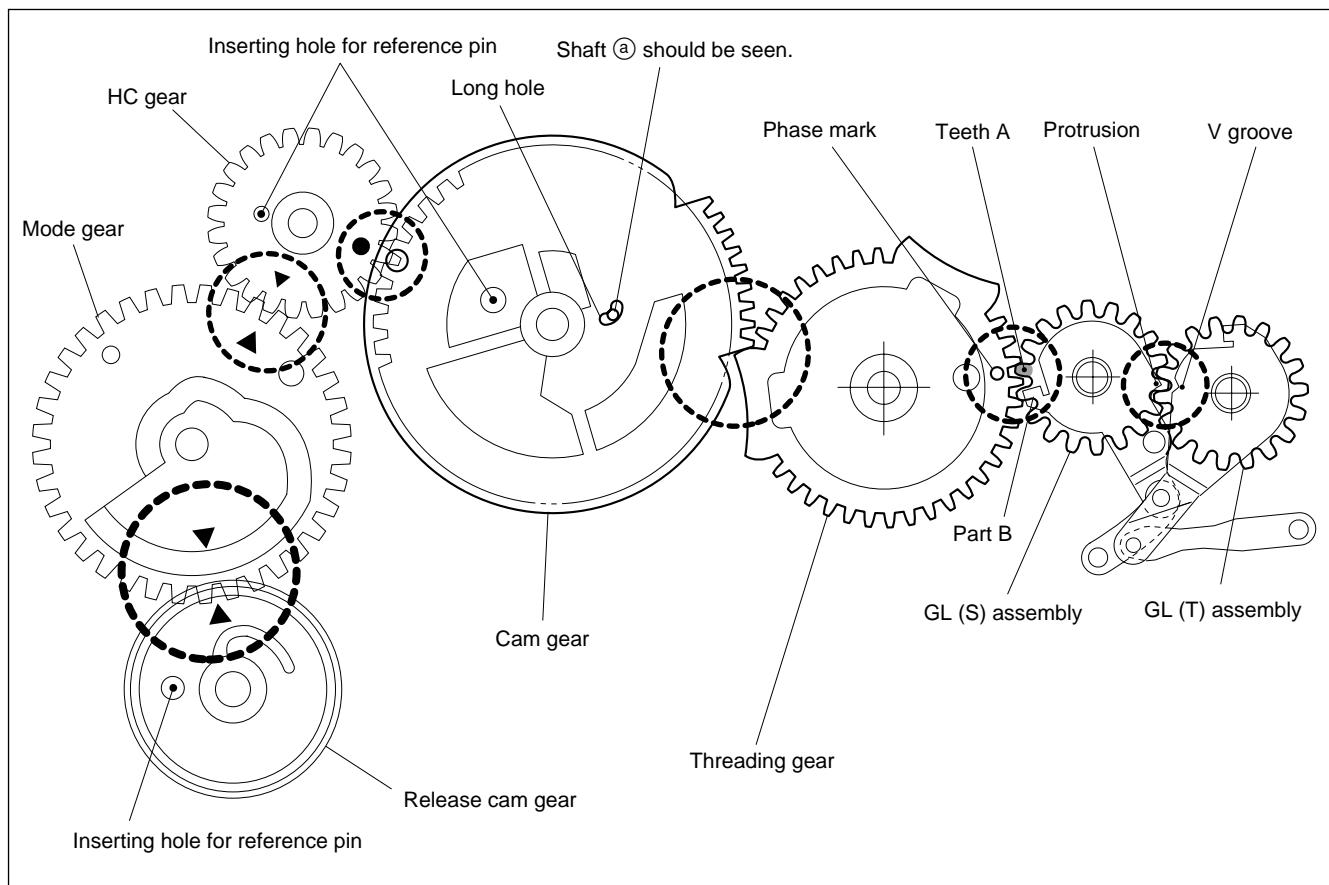
Reel table position: Standard cassette position

Replacement Flowchart



Removal

1. Remove the sensor attachment plate assembly. (Refer to Section 4-15.)
2. Remove the TR band assembly. (Refer to Section 4-12.)
3. Remove the TR arm assembly. (Refer to Section 4-16.)
4. Rotate No.1 gear in the counterclockwise direction to set it in the unthreading condition.
5. Insert the reference pin at the position shown in the figure, and adjust the phase of each gear.
6. Remove the cam gear.
7. Remove the HC gear.
8. Remove the soft brake arm (S). (Refer to Section 4-6.)
9. Remove the hard brake arm (S). (Refer to Section 4-7.)
10. Remove the release cam gear.



11. Remove the stopper washer shown in the figure, and remove the mode gear assembly.

Attachment

12. Attach the new mode gear assembly in the reverse order of step 11.

Note

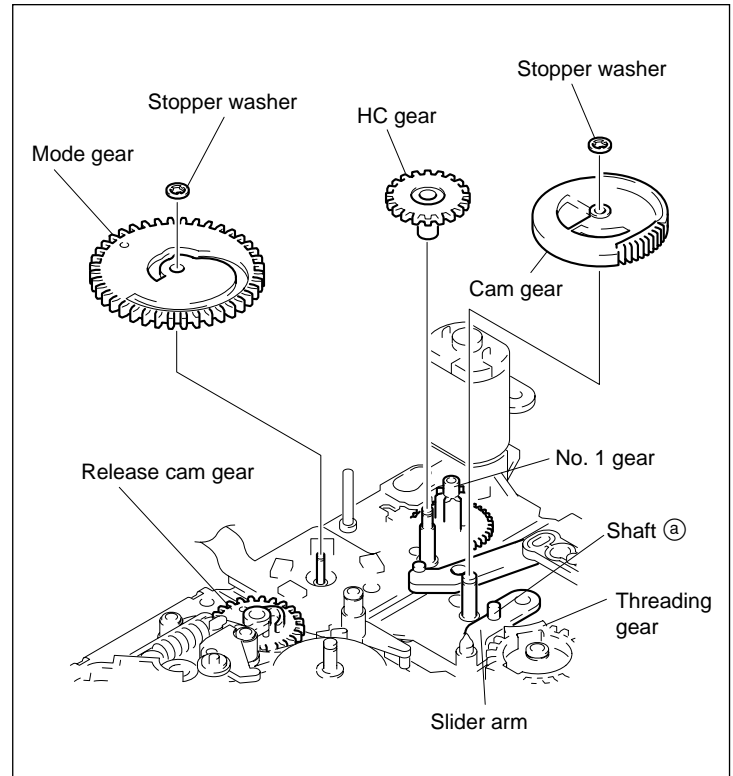
Insert the reference pin into the hole of the mode gear when attaching, and adjust the phase.

- 1) Adjust the protrusion of the GL (S) assembly to the V groove of the GL (T) assembly as shown in the figure, and attach the threading gear so that the phase mark of the threading gear and teeth A next to part B match.
- 2) Match the phases of the cam gear and threading gear, and check that shaft a of the slider arm can be seen from the long hole of the cam gear.

13. Pull out the reference pin.
14. Attach the parts removed in the order steps 10, 9, 8, 7, 6, 3, 2, 1.

Check/Adjustment

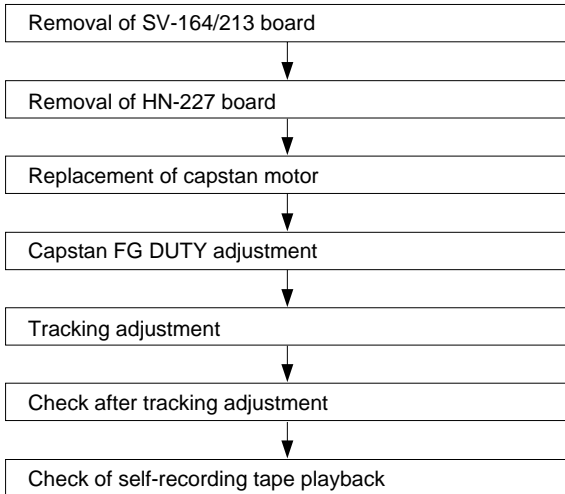
15. Perform TG-2 guide height check/adjustment.
(Refer to Section 4-35.)
16. Perform the tracking adjustment.
(Refer to Section 5-3.)
17. Perform the check after tracking adjustment.
(Refer to Section 5-4.)
18. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



4-28. Replacement of Capstan Motor

Mode: Unthreading end

Replacement Flowchart



Removal

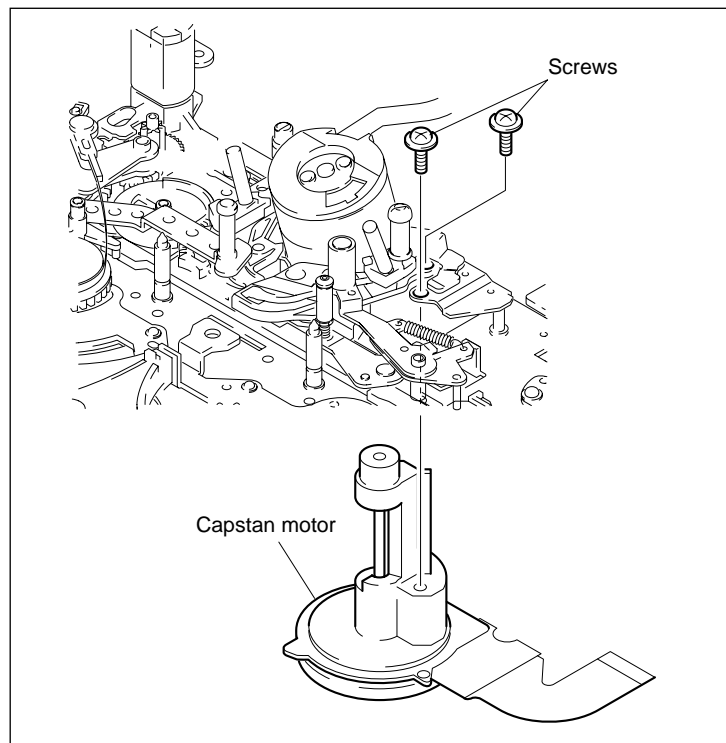
1. Remove the SV-164/213 board.
(Refer to Section 2-10-4.)
2. Remove the HN-227 board.
(Refer to Section 2-10-5.)
3. Remove the two screws shown in the figure, and remove the capstan motor and spacer.

Attachment

4. Attach the new capstan motor and spacer in the reverse order of step 3.
5. Attach the parts removed in the reverse order of steps 1 and 2.

Check/Adjustment

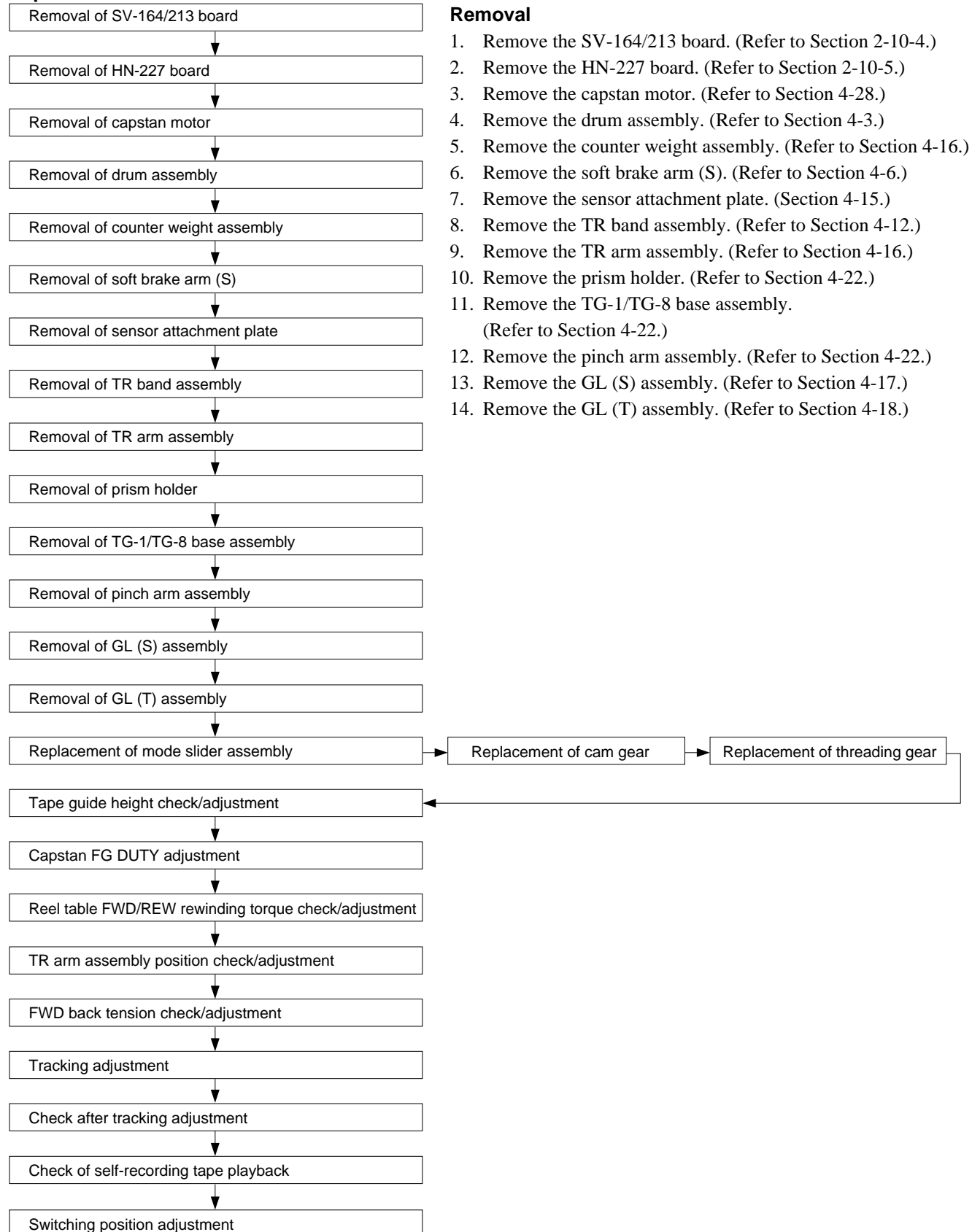
6. Perform the capstan FG DUTY adjustment at Menu M601. (Refer to Section 9-1.)
7. Perform the tracking adjustment.
(Refer to Section 5-3.)
8. Perform the check after tracking adjustment.
(Refer to Section 5-4.)
9. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



4-29. Replacement of Mode Slider / Cam Gear / Threading Gear

Mode: Unthreading end

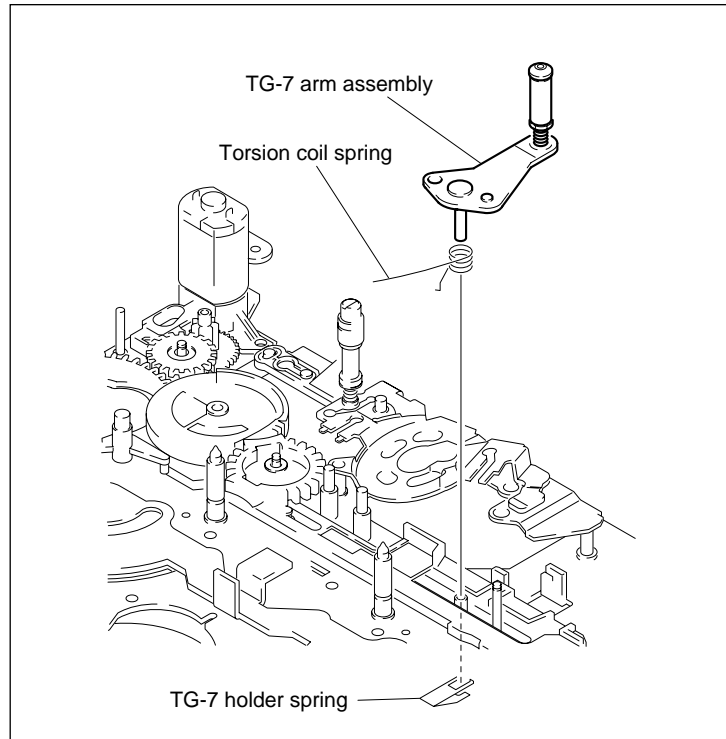
Replacement Flowchart



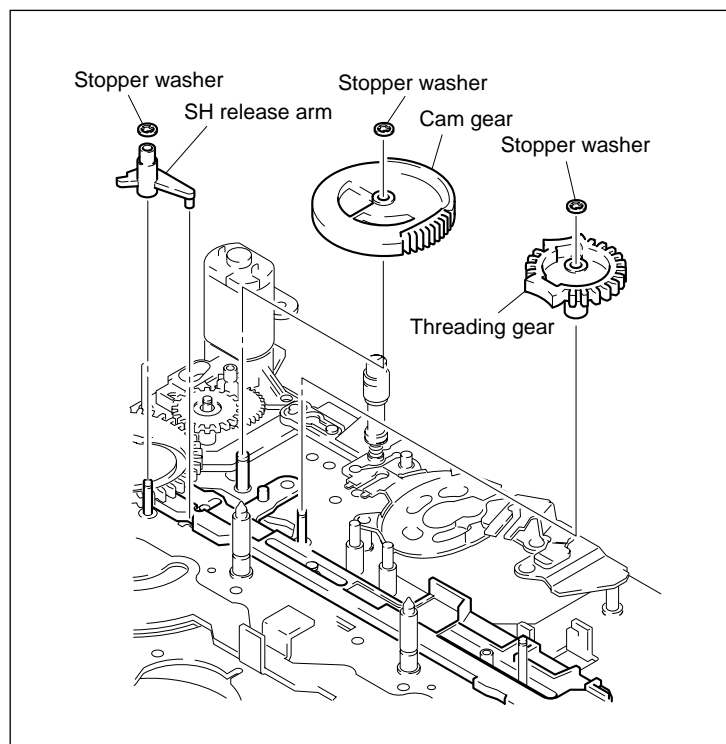
Removal

1. Remove the SV-164/213 board. (Refer to Section 2-10-4.)
2. Remove the HN-227 board. (Refer to Section 2-10-5.)
3. Remove the capstan motor. (Refer to Section 4-28.)
4. Remove the drum assembly. (Refer to Section 4-3.)
5. Remove the counter weight assembly. (Refer to Section 4-16.)
6. Remove the soft brake arm (S). (Refer to Section 4-6.)
7. Remove the sensor attachment plate. (Section 4-15.)
8. Remove the TR band assembly. (Refer to Section 4-12.)
9. Remove the TR arm assembly. (Refer to Section 4-16.)
10. Remove the prism holder. (Refer to Section 4-22.)
11. Remove the TG-1/TG-8 base assembly.
(Refer to Section 4-22.)
12. Remove the pinch arm assembly. (Refer to Section 4-22.)
13. Remove the GL (S) assembly. (Refer to Section 4-17.)
14. Remove the GL (T) assembly. (Refer to Section 4-18.)

15. Remove the TG-7 holder spring, and remove the TG-7 arm assembly and torsion coil spring.



16. Remove the stopper washer, and remove the SH release arm.
17. Remove the stopper washer, and remove the threading gear.
18. Remove the stopper washer, and remove the cam gear.



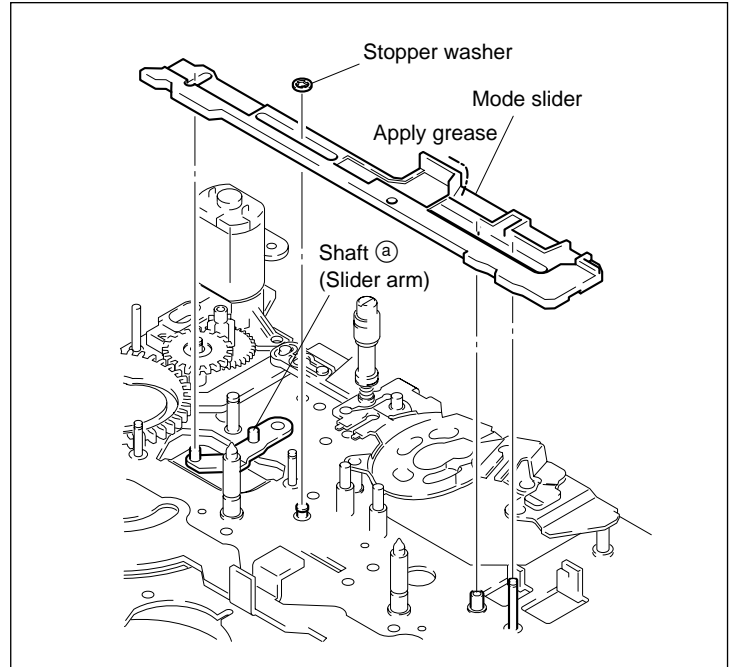
19. Remove the stopper washer shown in the figure, and remove the mode slider.

Attachment

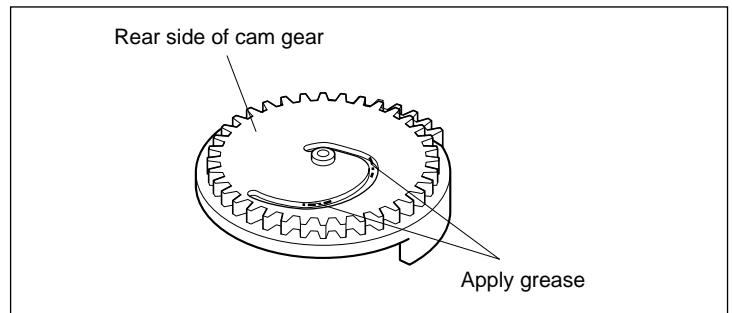
20. Attach the new mode slider in the reverse order of step 19.
Apply grease on to the portion of the mode slider shown in the figure.
21. Attach the parts removed in the reverse order of steps 1 to 18.

Note

When replacing the cam gear, apply grease on to the groove of rear side of the cam gear, then attach it.

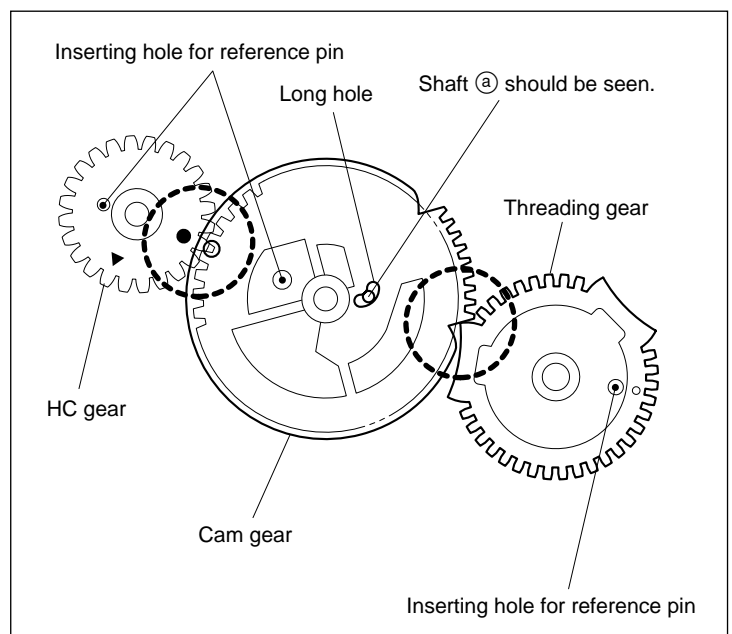


22. Adjust the phase as follows.
 - 1) When attaching the cam gear and threading gear, insert the reference pin into the hole of each gear shown in the figure, and adjust the phase.
 - 2) At the same time, make sure that shaft a of the slider arm should be seen from the long hole of the cam gear.



Adjustment

23. Perform the tape guide height check/adjustment. (Refer to Section 4-35.)
24. Perform the capstan FG DUTY adjustment at Menu M601. (Refer to Section 9-1.)
25. Perform the reel table FDW/REV rewinding torque check/adjustment. (Refer to Section 4-36.)
26. Perform the TR arm assembly position check/adjustment. (Refer to Section 4-38.)
27. Perform the FWD back tension check/adjustment. (Refer to Section 4-37.)
28. Perform the tracking adjustment. (Refer to Section 5-3.)
29. Perform the check after tracking adjustment. (Refer to Section 5-4.)
30. Perform the check of self-recording tape playback. (Refer to Section 5-5.)
31. Perform the switching position adjustment at Menu M605. (Refer to Section 5-6.)

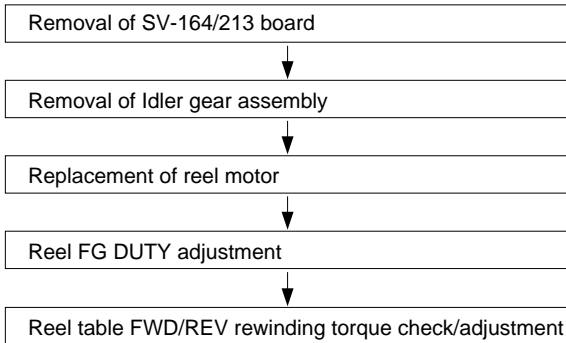


4-30. Replacement of Reel Motor

Reel table position: Standard cassette position

Mode: Unthreading end

Replacement Flowchart



Removal

1. Remove the SV-164/213 board.
(Refer to Section 2-10-4.)
2. Remove the idler gear assembly.
(Refer to Section 4-26.)
3. Remove the three screws, and remove the reel motor.

Note

When the reel motor is removed, the washer shown in the figure will also be removed with it. Be careful not to lose the washer.

Attachment

4. Attach the new reel motor in the reverse order of step 3.

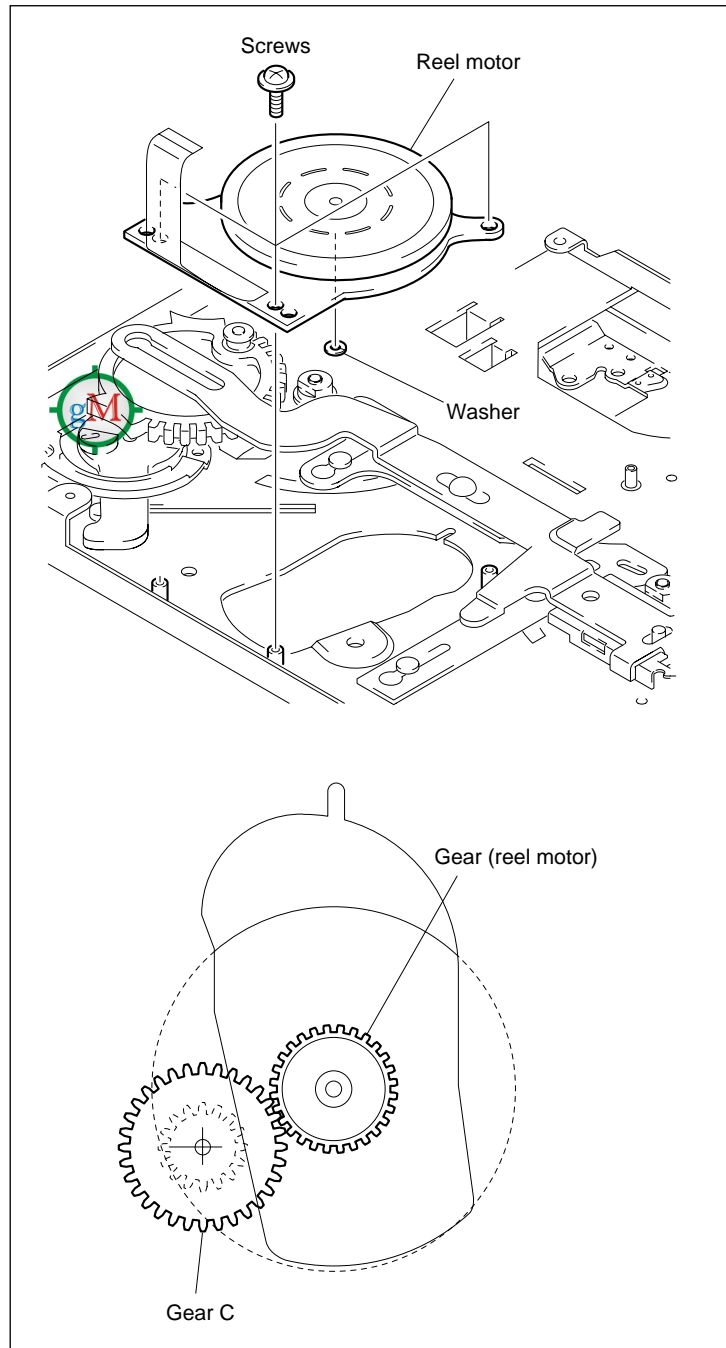
Note

After attaching, check that the gear of the reel motor shown in the figure and gear C are engaged.

5. Attach the parts removed in the reverse order of steps 1 to 3.

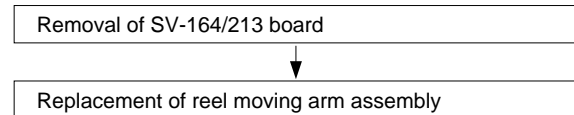
Check/Adjustment

6. Perform the reel FG DUTY adjustment at Menu M607. (Refer to Section 9-2.)
7. Perform reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-36.)



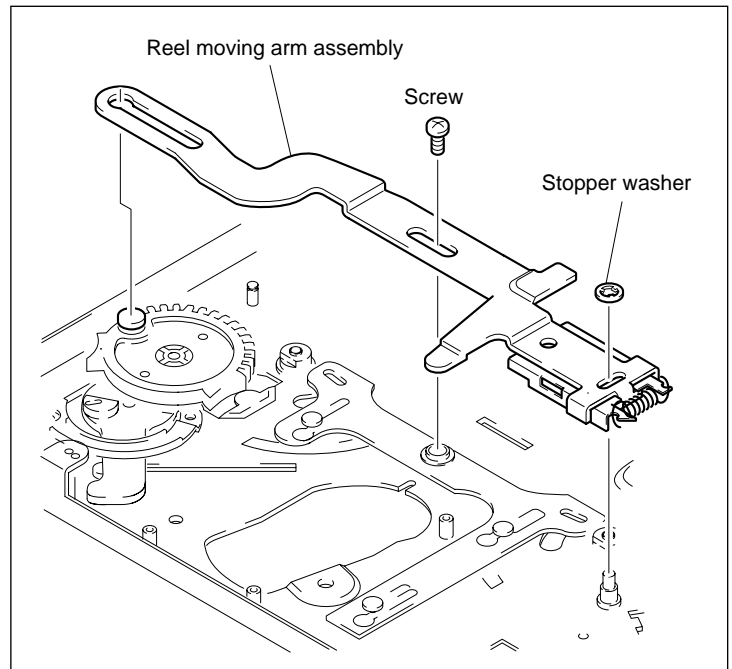
4-31. Replacement of Reel Moving Arm Assembly

Replacement Flowchart



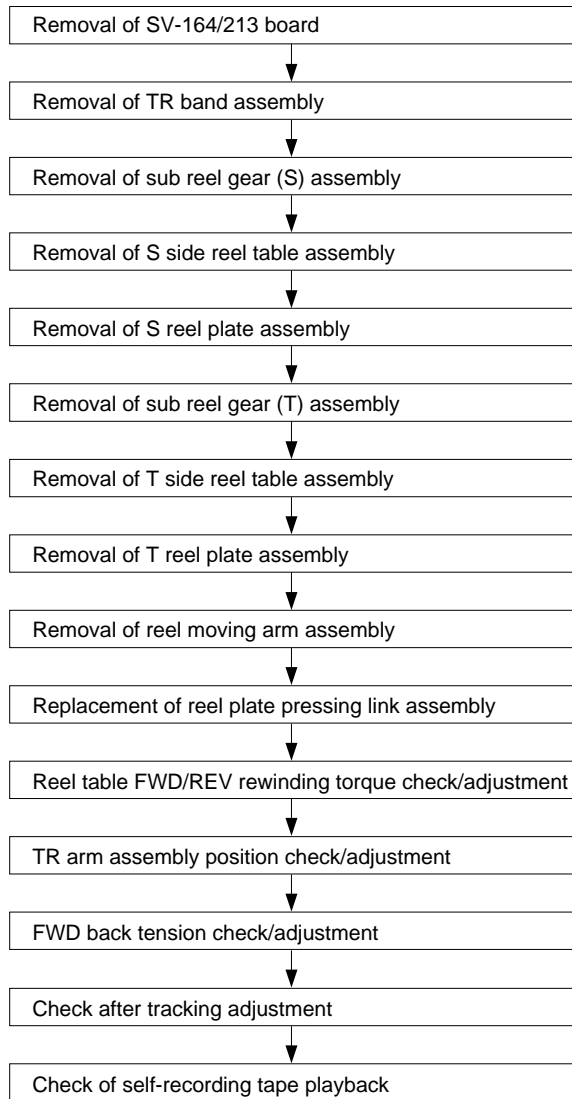
Removal/Attachment

1. Remove the SV-164/213 board.
(Refer to Section 2-10-4.)
2. Remove the screw and stopper washer shown in the figure, and remove the reel moving arm assembly.
3. Attach the new reel moving arm assembly in the reverse order of step 2.
4. Attach the parts removed in the reverse order of step 1.



4-32. Replacement of Reel Plate Pressing Link Assembly

Replacement Flowchart



Removal

1. Remove the SV-164/213 board. (Refer to Section 2-10-4.)
2. Remove the TR band assembly. (Refer to Section 4-12.)
3. Remove the sub reel gear (S) assembly.
(Refer to Section 4-10.)
4. Remove the S side reel table assembly. (Refer to Section 4-4.)
5. Remove the S reel plate assembly. (Refer to Section 4-19.)
6. Remove the sub reel gear (T) assembly.
(Refer to Section 4-11.)
7. Remove the T side reel table assembly. (Refer to Section 4-5.)
8. Remove the T reel plate assembly. (Refer to Section 4-20.)
9. Remove the reel moving arm assembly.
(Refer to Section 4-31.)

10. Remove the reel plate pressing link assembly from the shaft (at three parts) in the arrow direction as shown in the figure.

Attachment

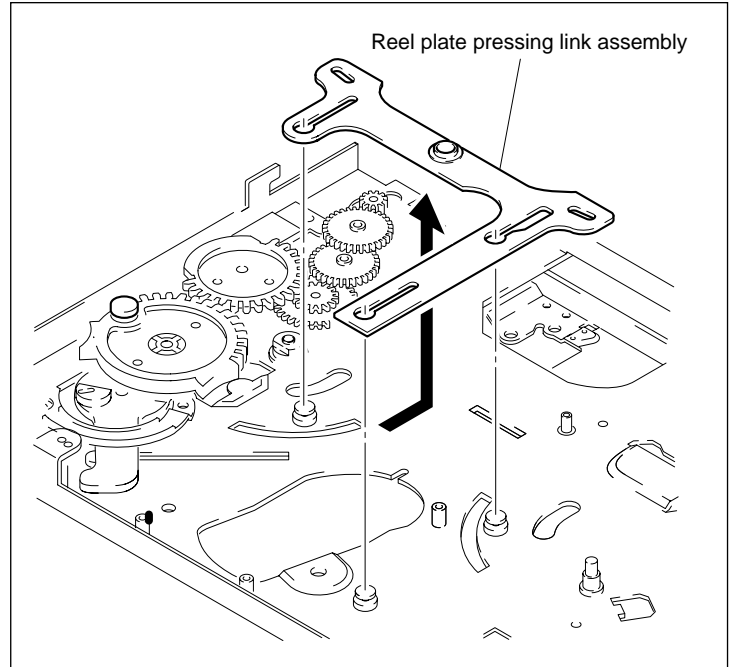
11. Attach the new reel plate pressing link assembly in the reverse order of step 10.
12. Attach the parts removed in the reverse order of steps 1 to 11.

Note

When attaching the parts, make sure that the S side reel table assembly and T side reel table assembly, and the sub reel gear (S) assembly and sub reel gear (T) assembly are not mixed up with each other.

Check/Adjustment

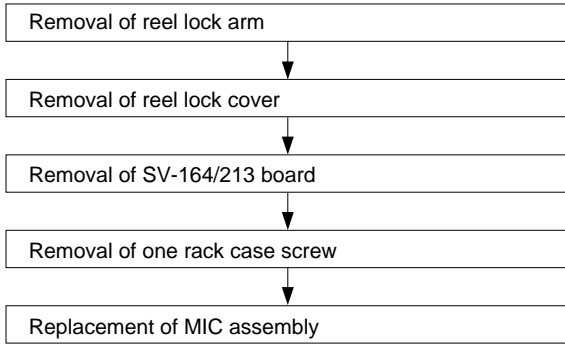
13. Perform the reel table FWD/REV rewinding torque check/adjustment. (Refer to Section 4-36.)
14. Perform the TR arm assembly position check/adjustment. (Refer to Section 4-38.)
15. Perform the FWD back tension check/adjustment. (Refer to Section 4-37.)
16. Perform the check after tracking adjustment. (Refer to Section 5-4.)
17. Perform the check of self-recording tape playback. (Refer to Section 5-5.)



4-33. Replacement of MIC Assembly

Reel table position: Center of the standard cassette position and mini cassette position

Replacement Flowchart



Removal

1. Remove the reel lock arm.
(Refer to Section 4-26.)
2. Remove the reel lock cover.
(Refer to Section 4-26.)
3. Remove the SV-164/213 board.
(Refer to Section 2-10-4.)
4. Rotate gear M of the shift motor, and move the MIC lever to the position shown in the figure.
5. Remove the screw of the rack case.
6. Lift up the MIC lever slightly, rotate the MIC assembly in the arrow direction and slide it, then further lift up the rack case slightly and remove it.

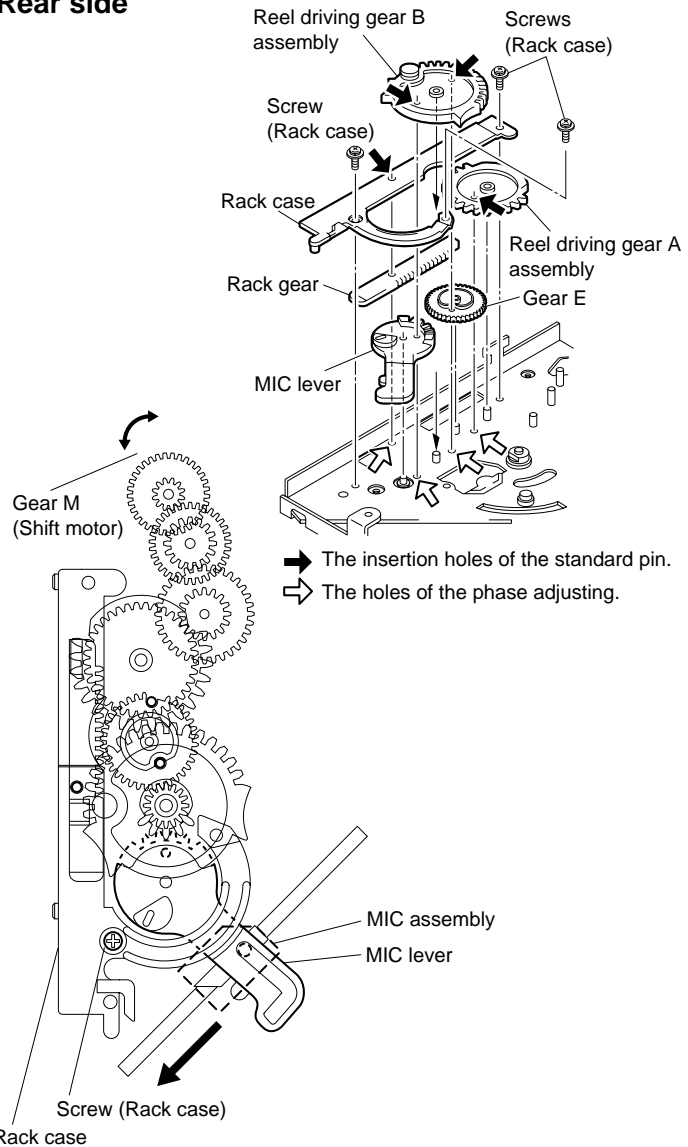
Attachment

7. Attach the MIC assembly in the reverse order of steps 4 to 6.
8. Attach the parts removed in the reverse order of steps 1 to 3.

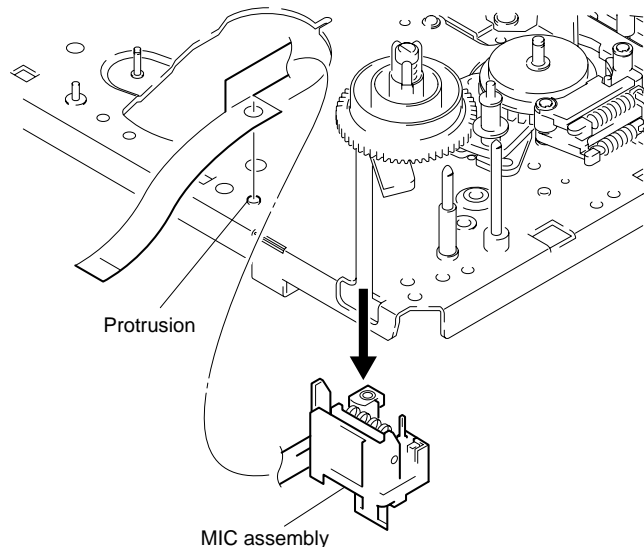
Check

9. After replacing, perform the phase check of each gear as follows.
 - Insert the reference pin into the gear hole shown in the figure, and check that it goes into the hole on the chassis.

Rear side



Front side

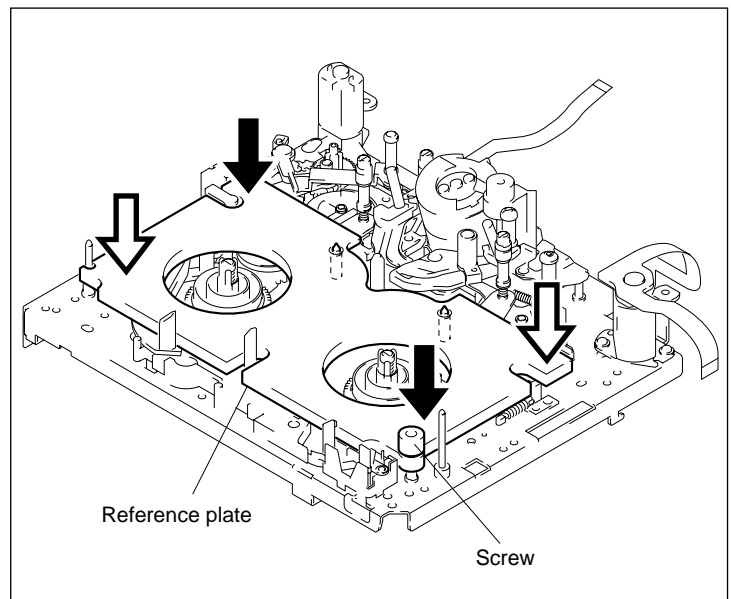


Adjustment after Replacement of Main Parts

4-34. S Reel Table, T Reel Table Height Check/Adjustment

Reel table position: Standard cassette position

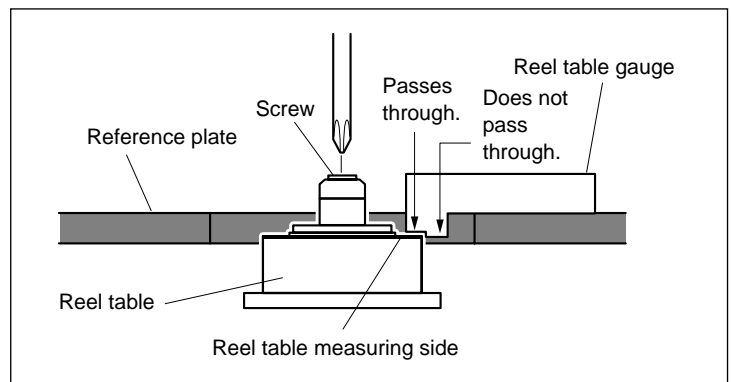
- Tools
Reference plate: J-6442-410-A
Reel table gauge: J-6442-430-A
 - Perform the reel table height check/adjustment in the same way for the S reel table and T reel table.
 - Perform with the cassette compartment removed.
(Refer to Section 4-2.)
1. Place the reference plate onto the mechanical deck, press the four corners of the reference plate with your finger on the diagonal lines respectively as shown in the figure, and check that it does not shake. If it shakes, rotate the screw on the reference plate, and adjust so that it does not shake.



2. Push the reel table gauge against the reel table lightly as shown in the figure, and check that the tip of the gauge passes through the top part, but not the bottom. If this is not satisfied, rotate the screw of the reel table shown in the figure, and adjust.

Note

When adjusting the reel table, do not rotate the screw counterclockwise. Rotate it clockwise only. If rotated counterclockwise a reel table must be replaced.



4-35. Guide Height Check/ Adjustment

Reel table position: Standard cassette position

Mode: Threading end

- Tools

Reference plate: J-6442-410-A

Guide gauge: J-6442-420-A

Tape guide adjustment screwdriver:

J-6082-362-A

Three bond 1401B (screw-locking compound):

7-432-114-11

- Remove the cassette compartment.

(Refer to Section 4-2.)

The following describes the method for performing the height check/adjustment of each guide.

- TG-1 guide

(Adjust the guide height with the upper flange.)

- TG-2 guide

(Adjust the guide height with the lower flange.)

- TG-3 guide

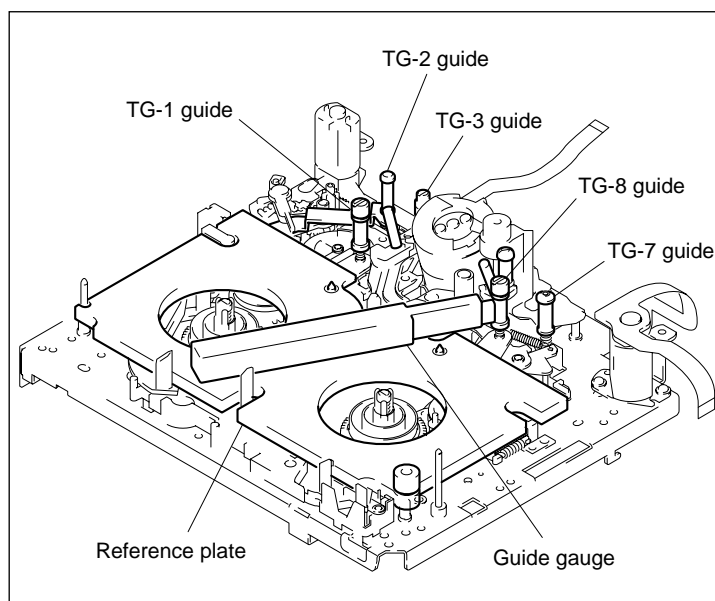
(Adjust the guide height with the upper flange.)

- TG-7 guide

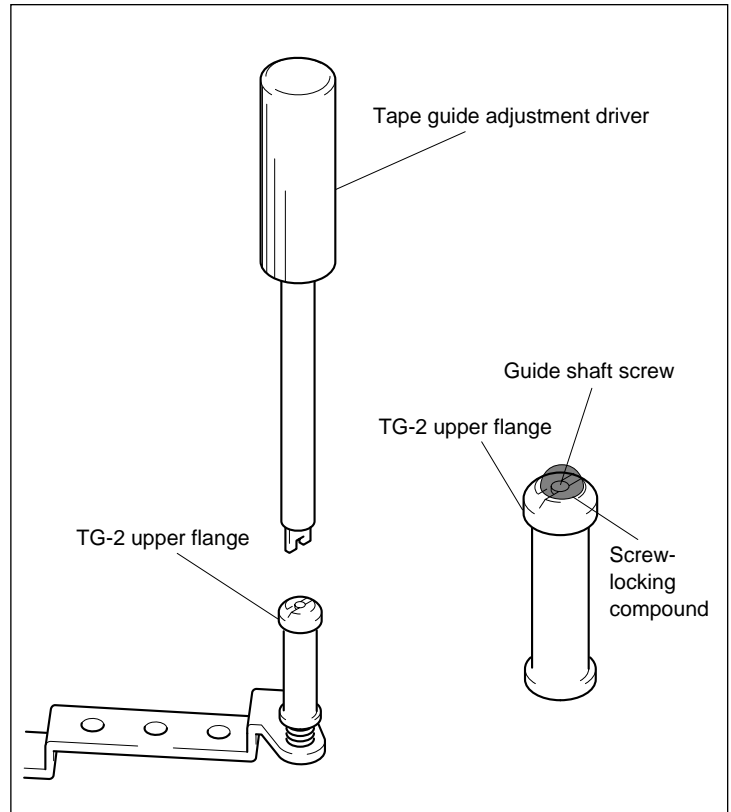
(Adjust the guide height with the upper flange.)

- TG-8 guide

(Adjust the guide height with the upper flange.)

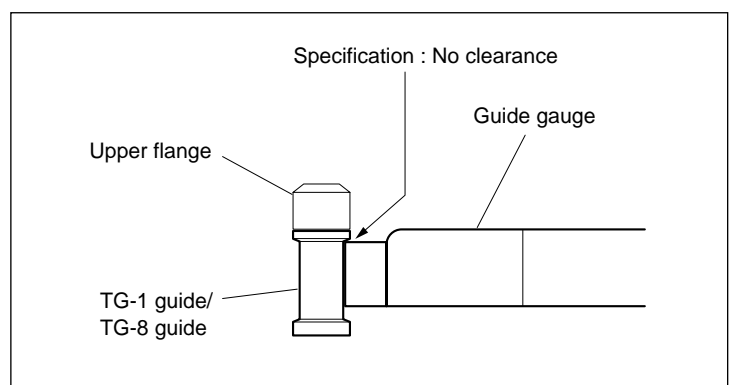


- Use the service tool tape guide adjustment screwdriver to adjust the height of the tape guides.
- After adjusting the tape guide height, apply screw-locking compound (Three bond 1401B) to the screw of the upper flange of the tape guides.



[TG-1, TG-8 Guide]

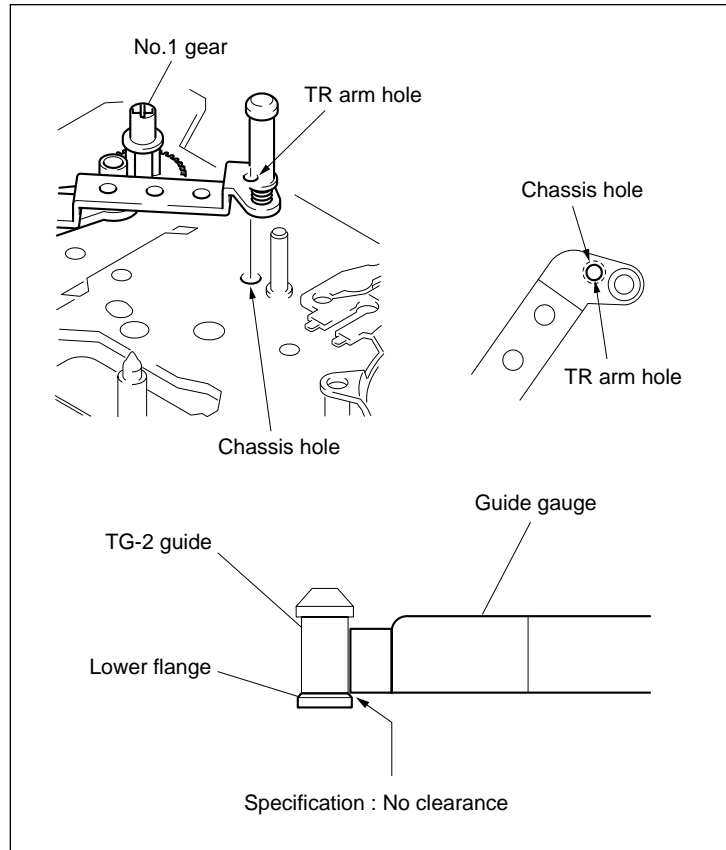
1. Place the reference plate on the mechanical deck. (Refer to Section 4-34. step 1.)
2. Place the guide gauge on the reference plate, push it to the guide lightly, and check that there is no clearance between the guide gauge and the upper flange.
If this is not satisfied, rotate the flange and adjust.



[TG-2 Guide]

1. Place the reference plate on the mechanical deck. (Refer to Section 4-34. step 1.)
2. Rotate the No.1 gear so that the TR arm hole and chassis hole shown in the figure are at the same position when seen from right above.
3. Place the guide gauge on the reference plate, push it to the guide lightly, and check that there is no clearance between the guide gauge and the lower flange.

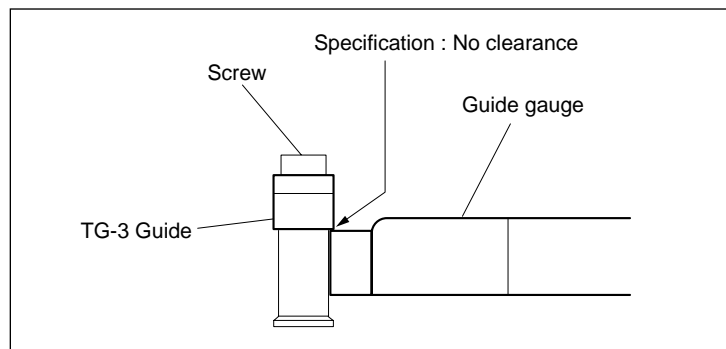
If this is not satisfied, rotate the flange and adjust.



[TG-3 Guide]

1. Place the reference plate on the mechanical deck. (Refer to Section 4-34. step 1.)
2. Place the guide gauge on the reference plate, push it to the guide lightly, and check that there is no clearance between the guide gauge and the upper flange.

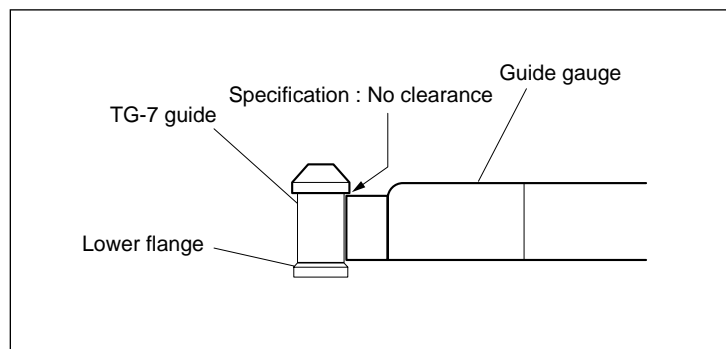
If this is not satisfied, rotate the screw shown in the figure and adjust.



[TG-7 Guide]

1. Place the reference plate on the mechanical deck. (Refer to Section 4-34. step 1.)
2. Place the guide gauge on the reference plate, push it to the guide lightly, and check that there is no clearance between the guide gauge and the upper flange.

If this is not satisfied, rotate the flange and adjust.



4-36. Reel Table FWD/REV Rewinding Torque Check/ Adjustment

Reel table position: Standard cassette position

- Tools

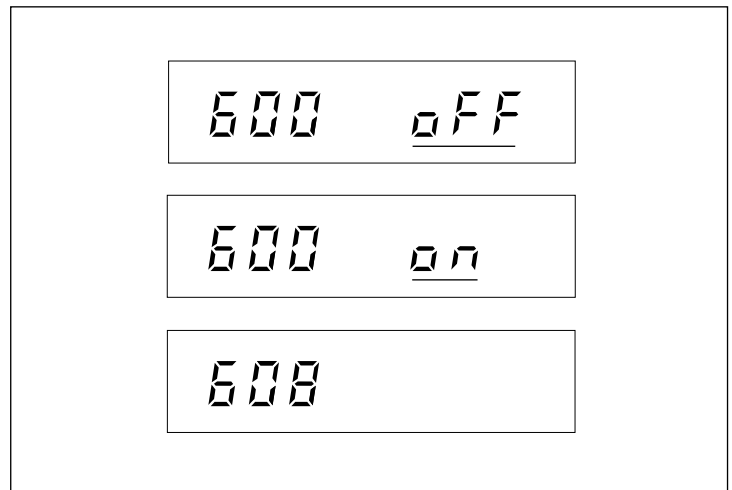
Torque gauge (90ATG): J-6442-510-A

Rewinding torque measuring attachment:

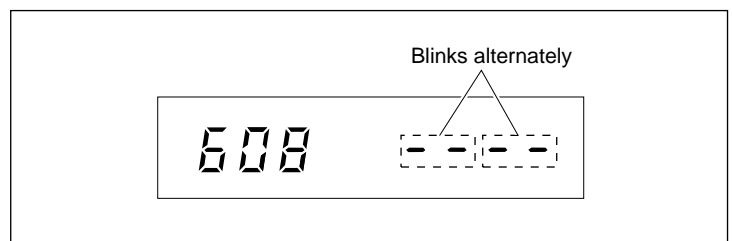
J-6442-520-A

Torque cassette: J-6082-373-A

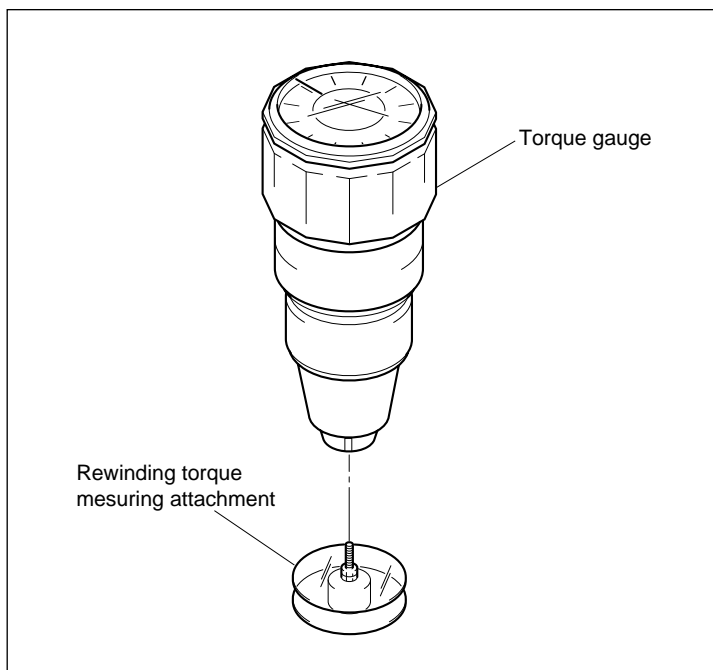
1. Remove the cassette compartment.
(Refer to Section 4-2.)
2. While pressing the SHIFT button inside the TC panel, press the MENU button.
3. While pressing MENU button, release the SHIFT button. Check that “600 oFF” is displayed about 1 second later, and release the MENU button.
(Displayed characters underlined in the following description indicate that they are blinking.)
4. Press the RESET (MENU SET) button once to blink “oFF.”
5. Press the ADVANCE button once and select “on.” (on and oFF are repeated each time the ADVANCE button is pressed.)
6. Press the RESET (MENU SET) button once.
7. Press the ADVANCE button or SHIFT button to display Menu No. 608.



8. Press the RESET (MENU SET) button.
Check that the parts displayed on the display window blink alternately as shown in the figure.



9. Set the rewinding torque measuring attachment to the torque gauge (90ATG) as shown in the figure.



10. Place the torque gauge on the T reel table, press the STOP key, and rotate the reel table to the FWD side.
11. Adjust the torque gauge pointer to "0" and check that the torque gauge value satisfies the specification.

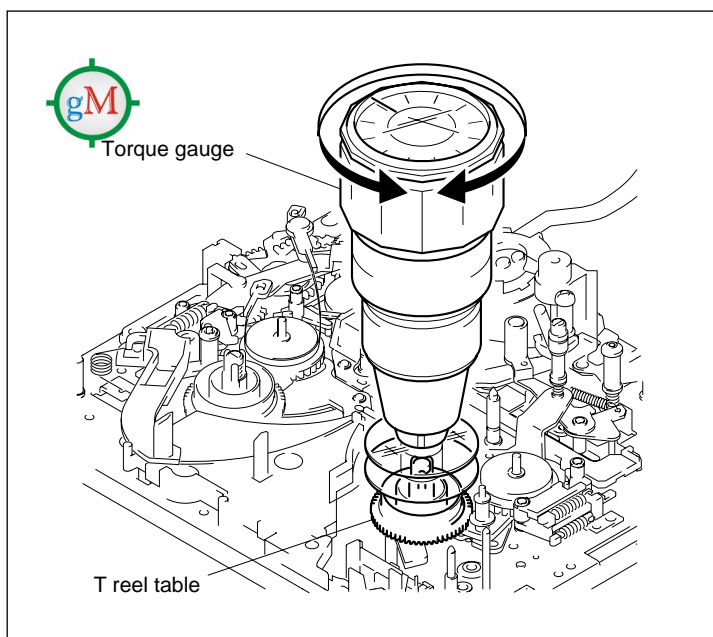
Specification:

FWD rewinding torque: $0.0052 \pm 0.0002 \text{ N}\cdot\text{m}$
($52 \pm 2 \text{ g}\cdot\text{cm}$)

If it does not, perform the following adjustment.

- When the torque value is towards the + side:
Press the REW key and adjust so that the torque value is within the specification.
- When the torque value is towards the – side:
Press the FF key and adjust so that the torque value is within the specification.

12. Press the STOP key, and stop the reel table from rotating.



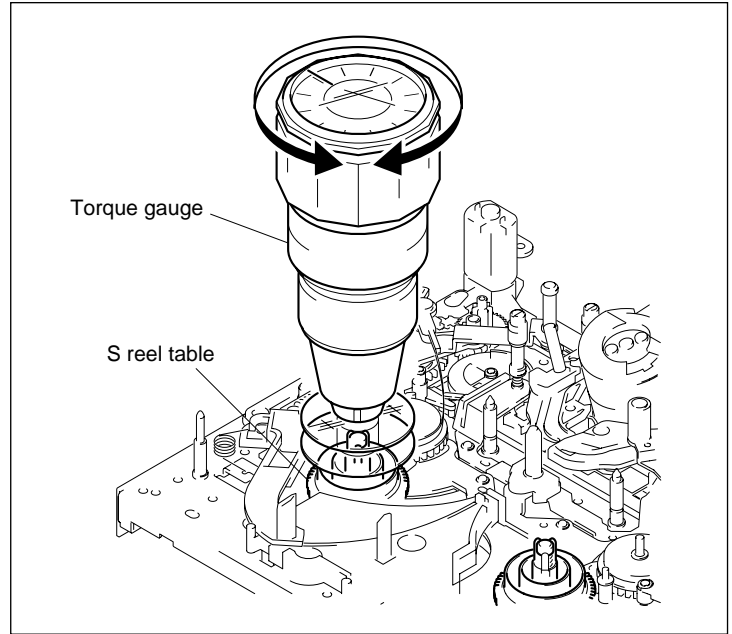
13. Place the torque gauge on the S reel table, press the STOP key, and rotate the reel table towards the REV side.
14. Adjust the torque gauge pointer to “0” and check that the torque gauge value satisfies the specification.

Specification:

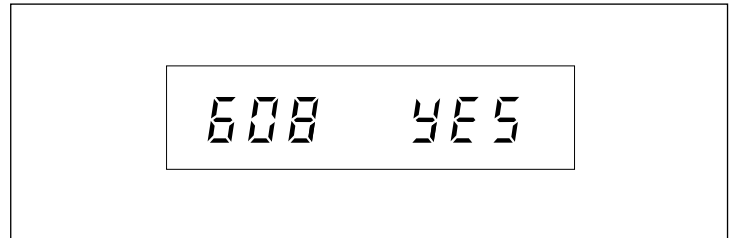
REV rewinding torque: $0.0052 \pm 0.0002 \text{ N}\cdot\text{m}$
 $(52 \pm 2 \text{ g}\cdot\text{cm})$

If it does not, perform the following adjustment.

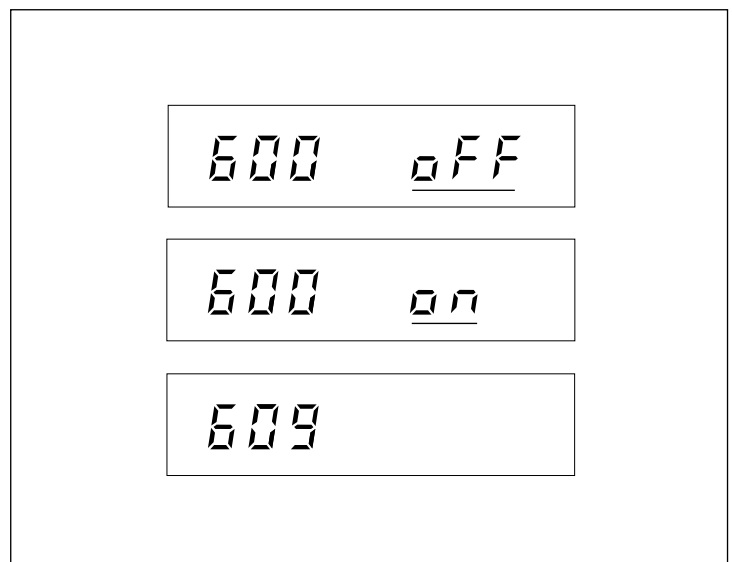
- When the torque value is towards the + side:
Press the REW key and adjust so that the torque value is within the specification.
- When the torque value is towards the – side:
Press the FF key and adjust so that the torque value is within the specification.



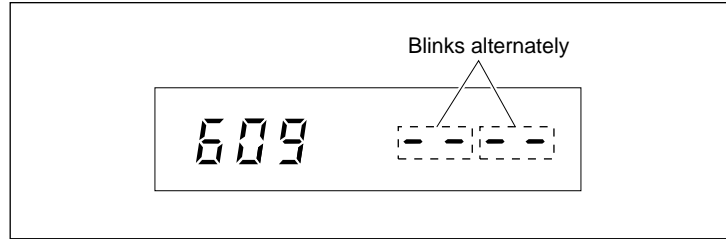
15. Press the STOP key, and stop the reel table from rotating.
16. After removing the torque gauge, press the EJECT key, and check that the display windows is as shown in the figure.
17. Attach the cassette compartment.
(Refer to Section 4-2.)



18. While pressing the SHIFT button inside the TC panel, press the MENU button.
19. While pressing MENU button, release the SHIFT button. Check that “600 oFF” is displayed about 1 second later, and release the MENU button. (Displayed characters underlined in the following description indicate that they are blinking.)
20. Press the RESET (MENU SET) button once to blink “oFF.”
21. Press the ADVANCE button once and select “on.” (on and oFF are repeated each time the ADVANCE button is pressed.)
22. Press the RESET (MENU SET) button once.
23. Press the ADVANCE button or SHIFT button to display Menu No. 609.



24. Press the RESET (MENU SET) button.
Check that the parts displayed on the display window blink alternately as shown in the figure.
25. Insert the torque cassette, and check that the STOP mode is set.



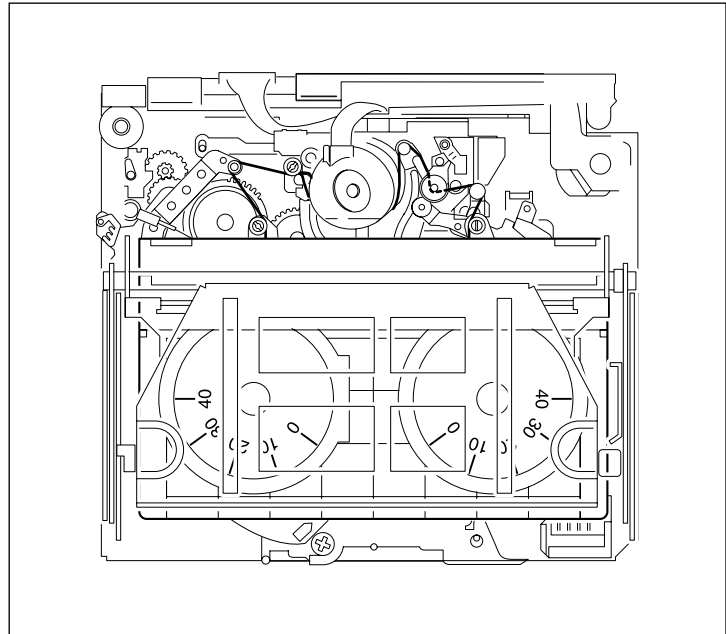
26. Press the STOP key, and check that the torque cassette value of the FWD tape path satisfies the specification.

Specification:

FWD rewinding torque: $0.0010 \pm 0.0001 \text{ N}\cdot\text{m}$
($10 \pm 1 \text{ g}\cdot\text{cm}$)

If it does not, perform the following adjustment.

- When the torque value is towards the + side:
Press the REW key and adjust so that the torque value is within the specification.
 - When the torque value is towards the – side:
Press the FF key and adjust so that the torque value is within the specification.
27. Press the STOP key, and check that the torque cassette value of the REV tape path satisfies the specification.

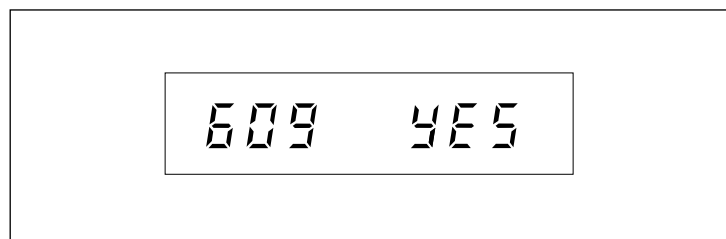


Specification:

REV rewinding torque: $0.0010 \pm 0.0001 \text{ N}\cdot\text{m}$
($10 \pm 1 \text{ g}\cdot\text{cm}$)

If it does not, perform the following adjustment.

- When the torque value is towards the + side:
Press the REW key and adjust so that the torque value is within the specification.
 - When the torque value is towards the – side:
Press the FF key and adjust so that the torque value is within the specification.
28. Press the EJECT key, and remove the torque cassette.
 29. Check that the display window is as shown in the figure.



4-37. FWD Back Tension Check/ Adjustment

Reel table position: Standard cassette position

Mode: PLAY

- Tool

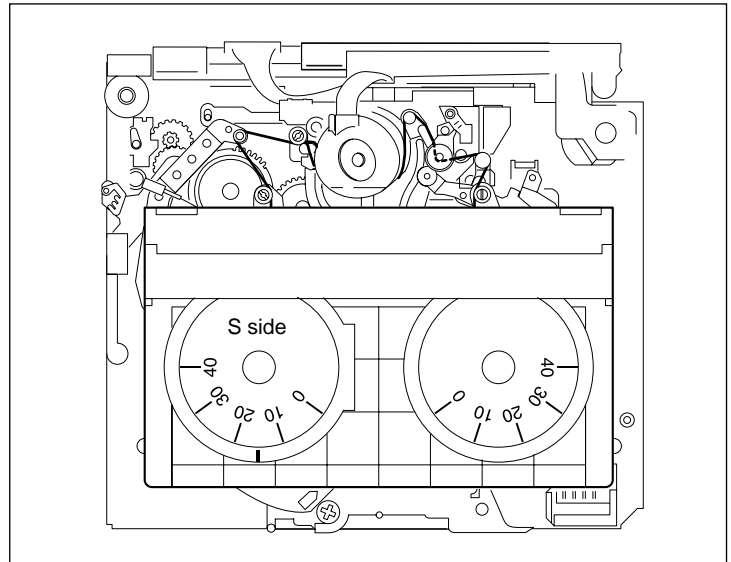
Torque cassette: J-6082-373-A

1. Remove the cassette compartment.
(Refer to Section 4-2.)
2. Set the torque cassette.
3. Hold the torque cassette gently so that it does not rise, run the tape, and check that the FWD back tension torque value (S side) satisfies the specification.

Specification

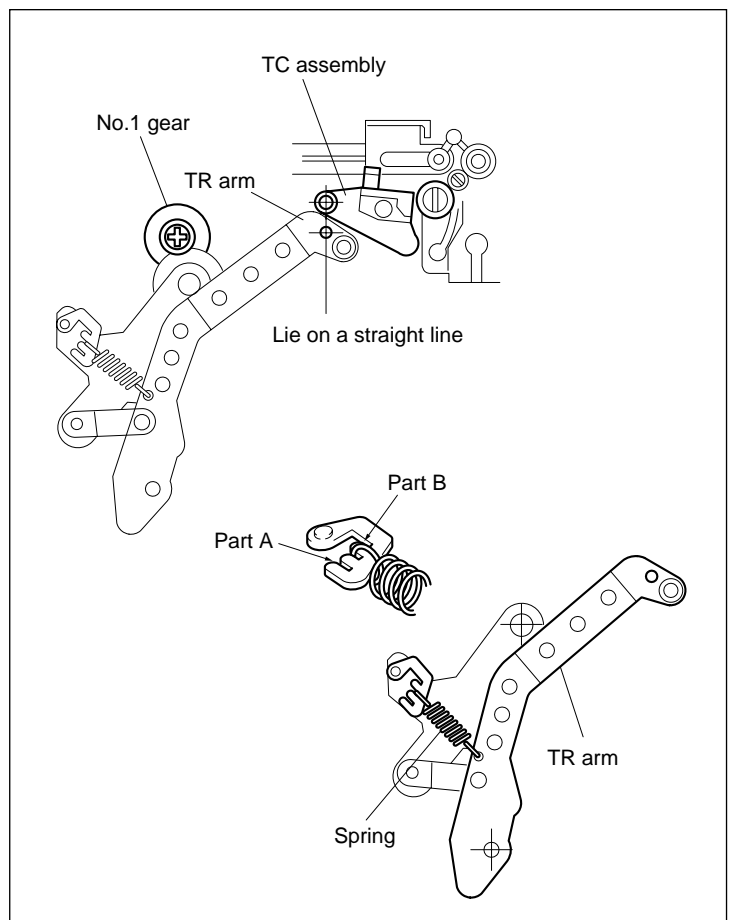
FWD back tension torque:

0.0011 to 0.00145 N•m (11 to 14.5 g•cm)



If it does not, perform the following adjustment.

- 1) Press the EJECT key, and remove the tape.
 - 2) Rotate the No.1 gear, load the TR arm, and adjust so that the TR arm hole and TC assembly shaft hole shown in the figure lie on a straight line.
- When the torque value is towards the + side:
Re-hook the spring at part A.
 - When the torque value is towards the – side:
Re-hook the spring at part B.
4. Perform step 3 again, and check that the torque value satisfies the specification.



4-38. TR Arm Assembly Position Check/Adjustment

Reel table position: Mini cassette position

Mode: PLAY

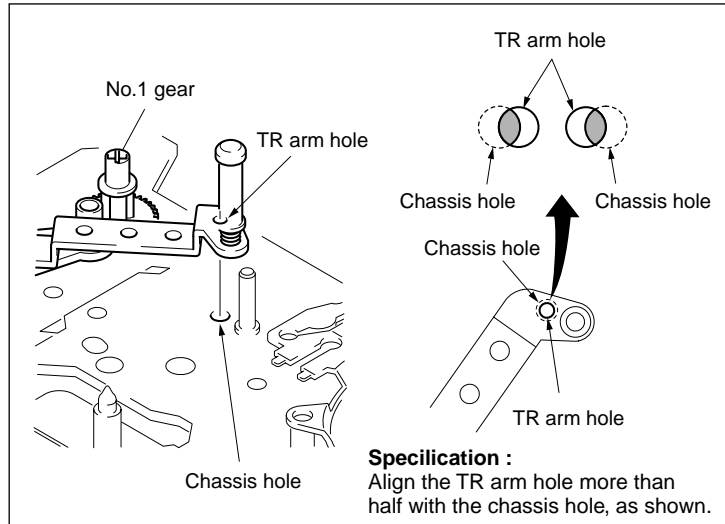
- Tool

Mini cassette tape (commercial product)

1. Run the mini cassette tape (commercial product), and check that the TR arm hole should be aligned more than half with the chassis hole, as shown.

Specification:

The TR arm hole should be inside the chassis hole during PLAY mode.

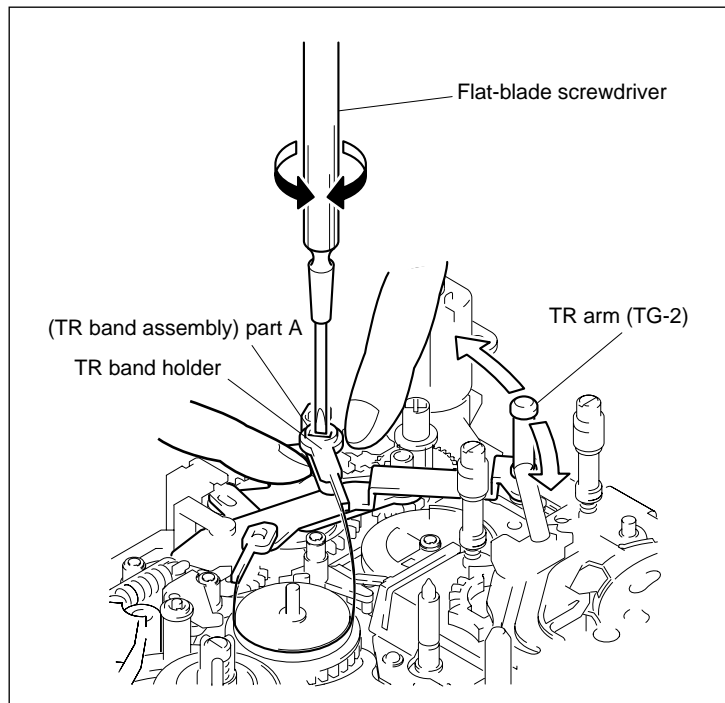


If it is not, perform the following adjustment.

- Insert a flat-blade screwdriver into part A of the TR band assembly shown in the figure, rotate it in the clockwise or counterclockwise directions to adjust it.

Notes

- When performing the adjustment, hold the TR band holder so that it does not rotate.
- Never touch the tape.



Section 5

Tape Path Alignment

5-1. General Information for Tape Path Alignment

5-1-1. Equipment and Tools Used

- Oscilloscope (Tektronix 2445B or equivalent)
- Guide adjustment driver (SONY Part No. J-6082-362-A)
- Small adjustment mirror (SONY Part No. J-6080-710-A)
- RF extension tool (SONY Part No. J-6442-350-A)
- Alignment tape, XH2-1AST (for DSR-300A/300AP, SONY Part No. 8-967-999-02)
- Alignment tape, XH5-1A (for DSR-300A, SONY Part No. 8-967-999-21)
- Alignment tape, XH5-1AP (for DSR-300AP, SONY Part No. 8-967-999-25)
- Blanking tape (commercially available tape, SONY PDVM-40ME or equivalent)
- Three bond 1401B

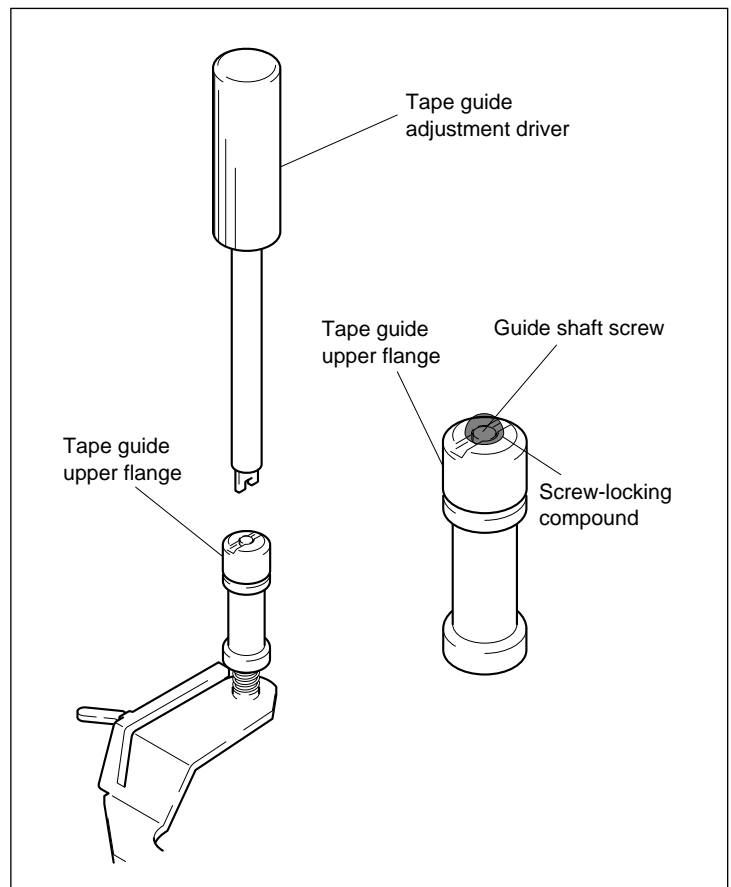
5-1-2. Tape Guide Adjustment Driver and Locking Screw

- (1) When performing the height adjustment of each tape guide, use the tape guide adjustment driver as a service tool.
- (2) Adjust the heights of TG-1, TG-2, TG-3, TG-7 and TG-8 guides, then apply a screw-locking compound to the locking screw of the upper flange of the tape guide.

	SONY Part No.
Tape guide adjustment driver	J-6082-362-A
Three Bond 1401B	7-432-114-11

Precaution on applying a screw-locking compound:

- Do not apply a screw-locking compound to a face which is in contact with tape.



5-1-3. Tape Path Adjustment Preparations

(1) Cassette Compartment

Attach the cassette compartment when performing tape path adjustments. This will enable adjustments to be performed more accurately.

(2) Cleaning

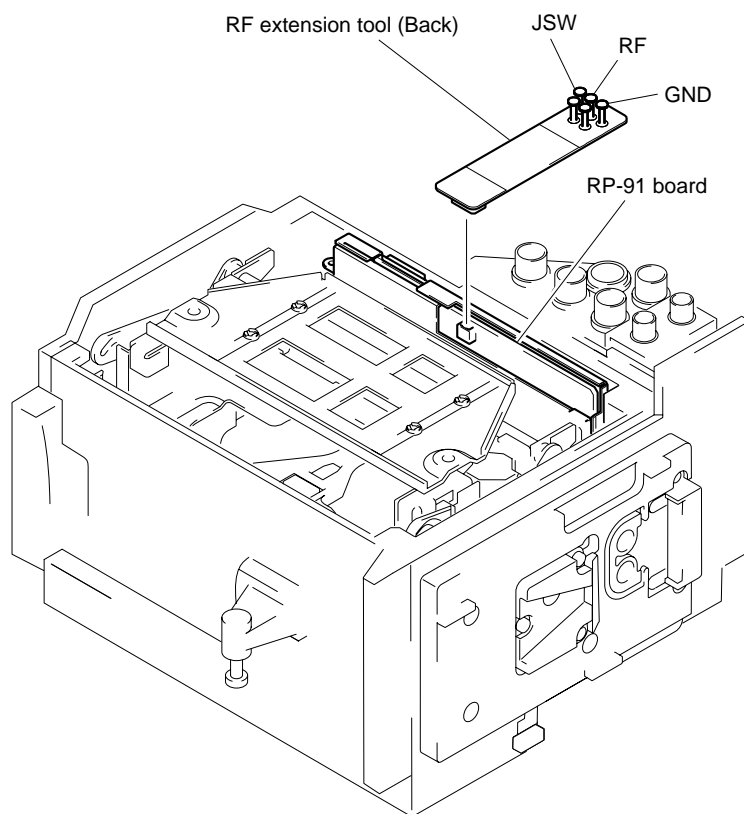
Clean faces that are in contact with tape. For how to clean them, refer to Section 3-4.

5-1-4. Connection

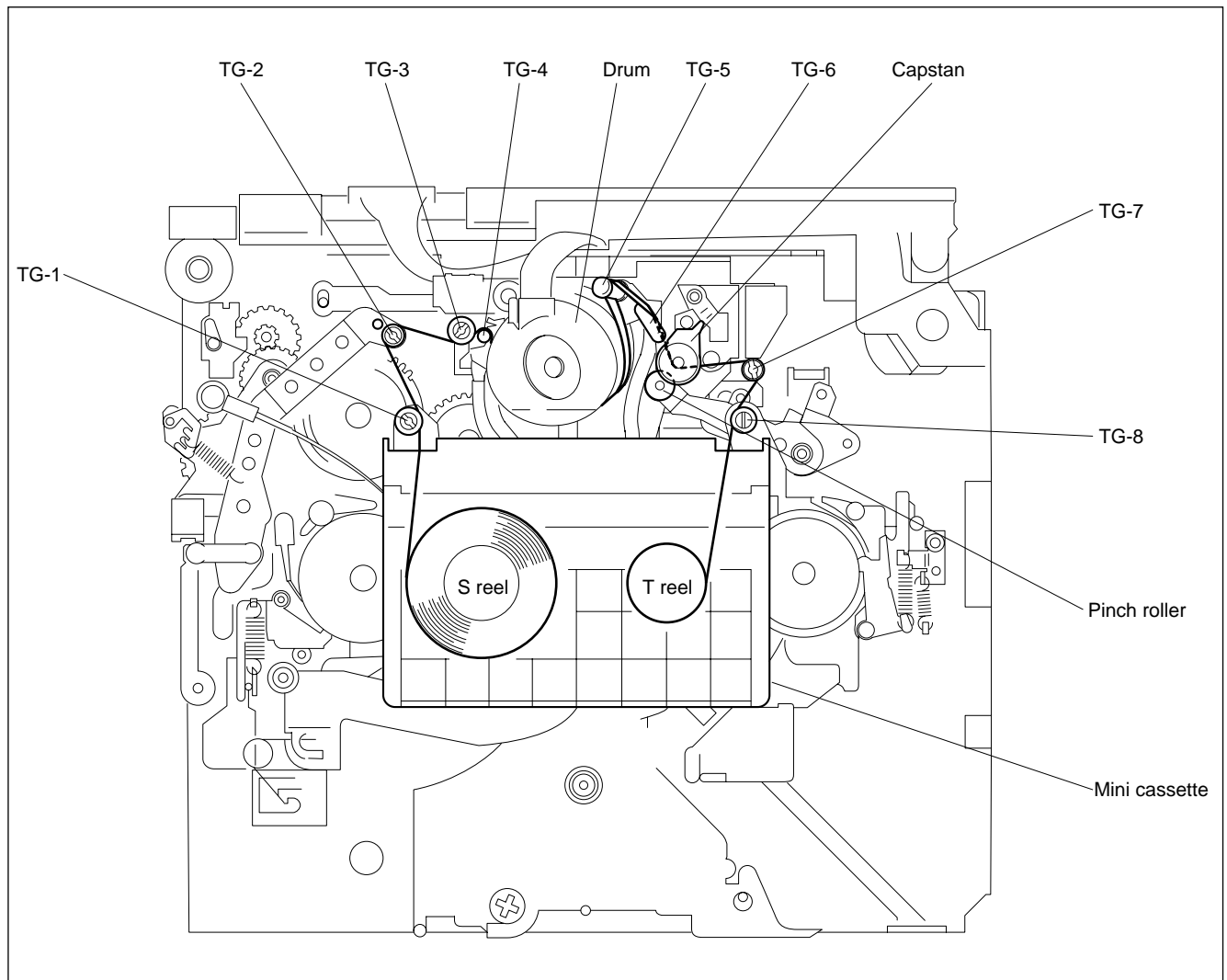
RF extension tool

Tool which can extract signals output from connector CN775 of the RP-91 board and can be connected easily to the probe.

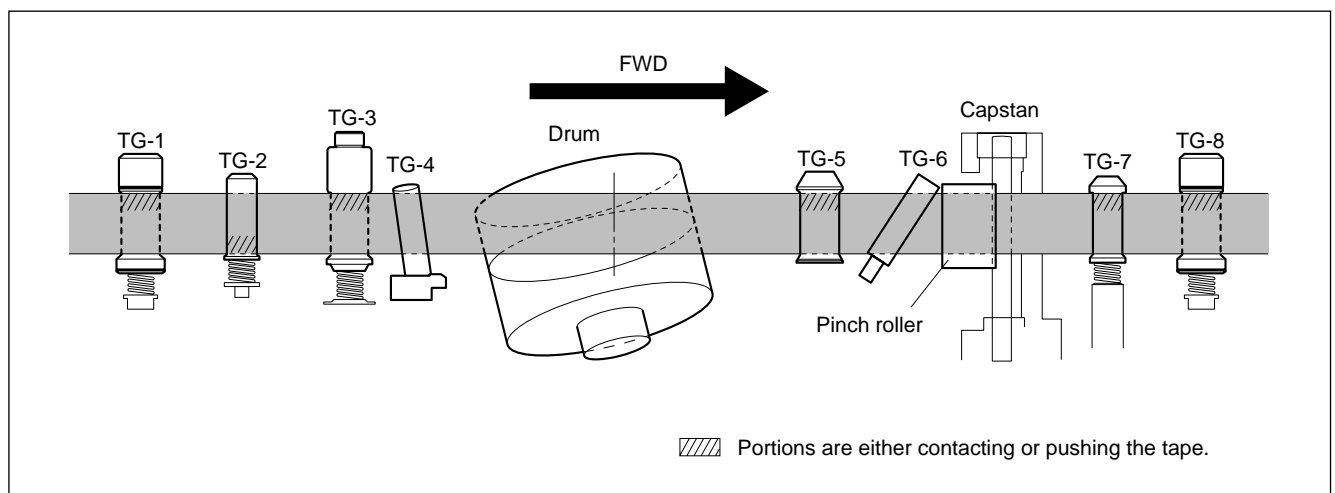
Insert the RF extension tool board into CN775 of the RP-91 board.



5-1-5. Drum and Tape Guide Positions



5-1-6. Tape Path State



5-2. Initial Setting

The tape path system adjustment is performed by setting the following maintenance menu.

No. 604 tracking adjustment:

Performs recording and playback in the central ITI mode.

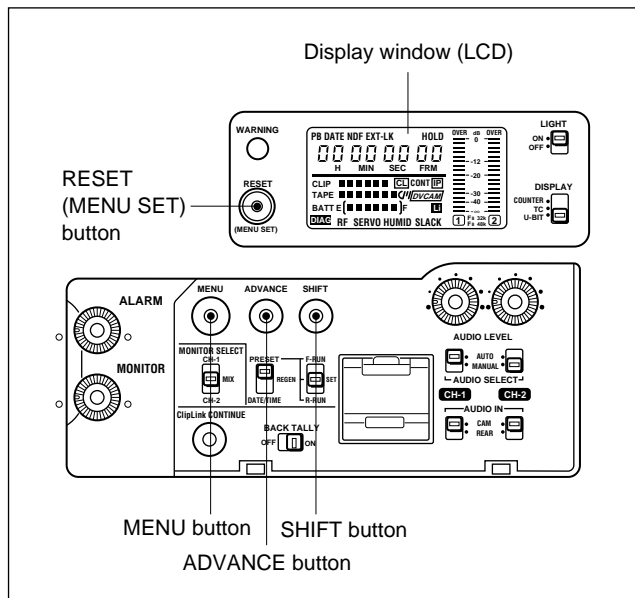
Note

ITI mode is effective only when the power is ON.
When the power is turned OFF, it is automatically set to OFF.

No. 605 switching position adjustment:

Performs automatic adjustment of the switching position. (Refer to Section 5-6 for how to set menu No.605 “Switching position adjustment.”)

The method of setting menu No. 604



1. Set the maintenance menu, and select Menu No. 601.
- (1) Press the MENU button while pressing the SHIFT button, then release the SHIFT button first, and release the MENU button after more than 1 second.
The display window (LCD) will display as follows.
(Characters underlined on the display window (LCD) in the description of operations hereafter indicate that they are blinking.)



- (2) Press the RESET (MENU SET) button once so that “oFF” blinks.

The display window (LCD) will display as follows.



Each time the RESET (MENU SET) button is pressed, “600” and “oFF” will blink alternately.

- (3) Press the ADVANCE button once, and select “on.”
The display window (LCD) will display as follows.



Each time the ADVANCE button is pressed, “on” and “oFF” will blink alternately.

- (4) Press the RESET (MENU SET) button once.
The display window (LCD) will display as follows.



Each time the RESET (MENU SET) button is pressed, “600” and “on” will blink alternately.

- (5) Press the ADVANCE button once to display Menu No. 604.

The display window (LCD) will display as follows.



Each time the ADVANCE button is pressed, Menu Nos. are changed as follows.

600 → 601 → 603 → ... → 513 → 600 → 601 → ...

Each time the SHIFT button is pressed, Menu Nos. are changed as follows.

600 → 513 → 509 → ... → 601 → 600 → 513 → ...

- (6) Press the RESET (MENU SET) button.

The display window (LCD) will display as follows.



- (7) Press the ADVANCE button to select "10."

(Each time the ADVANCE button is pressed, "oFF → 10 → 5 → 20 → oFF" is repeatedly displayed.)



- (8) Press the RESET (MENU SET) button.

"604" will blink and the mode is set.

5-3. Tracking Adjustment

Equipment and Tools

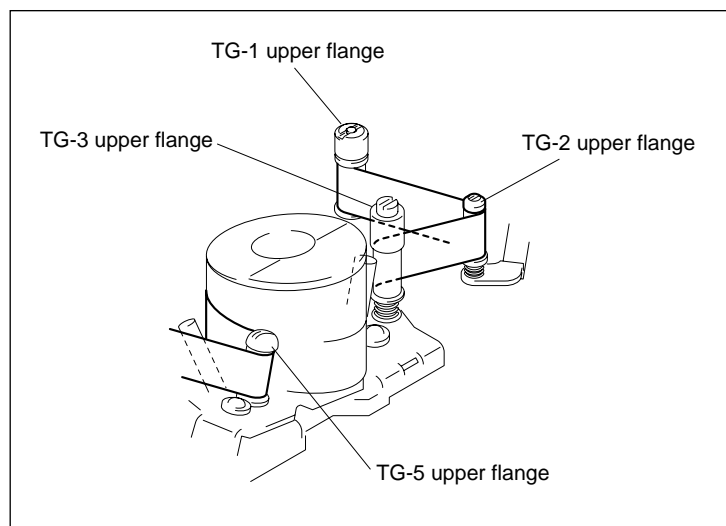
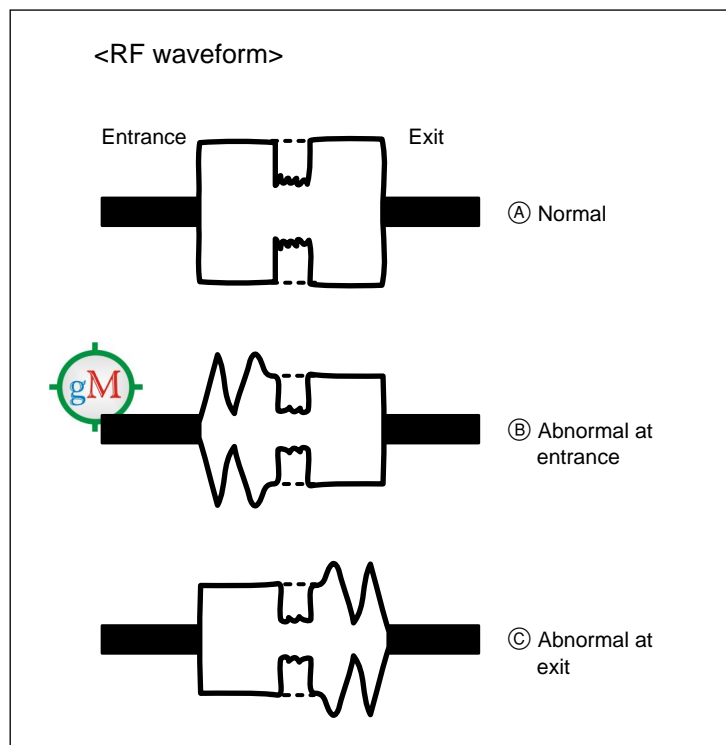
- Alignment tape, XH2-1AST
- RF extension tool
- Oscilloscope

Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
CH1: RF/RF extension tool (RF waveform)
CH2: JSW/RF extension tool (Switching waveform)
Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment.
(Refer to Section 5-2.)
4. Insert an alignment tape into the unit.

5-3-1. Tracking Rough Adjustment

1. Put the unit in PLAY mode.
2. Check that the tape runs along the TG-2 lower flange, TG-3 upper flange, TG-5 upper flange and TG-7 upper flange. (Refer to Section 5-1-6. Tape Path State.)
Then, check that there are no curls formed on the TG-1 and TG-8 upper flanges.
(At this time, the tape need not along the TG-1 and TG-8 upper flanges.)
3. Check that both the RF waveforms at both the entrance and exit are flat on the oscilloscope.
4. If RF waveform does not flat, rotate the TG-3 and TG-5 upper flanges, and adjust so that it becomes flat.



5-3-2. TG-1, TG-2 , TG-3 and TG-5 Guides Adjustment

Equipment and Tools

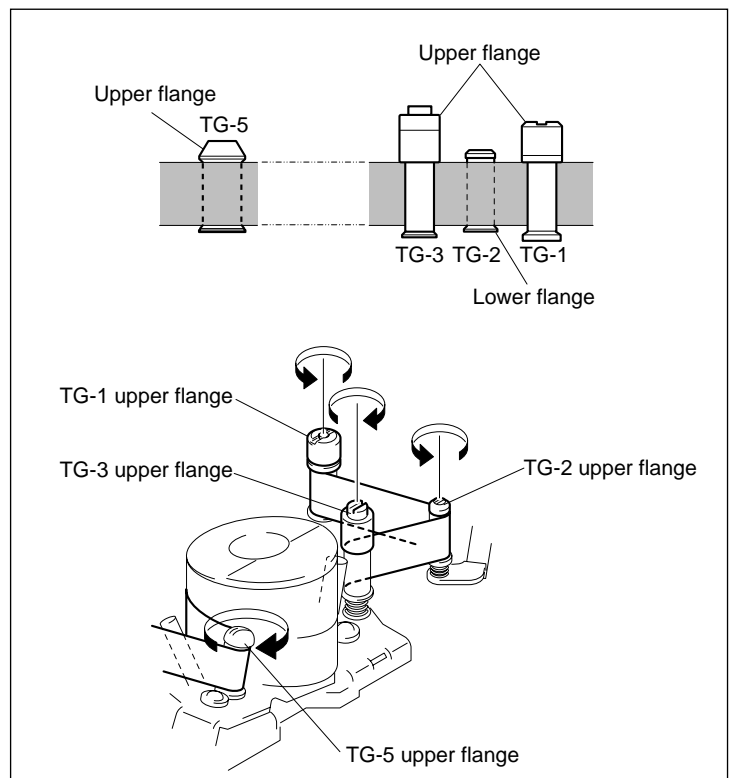
- Alignment tape, XH2-1AST
- RF extension tool
- Oscilloscope

Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
CH1: RF/RF extension tool (RF waveform)
CH2: JSW/RF extension tool (Switching - waveform)
Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment.
(Refer to Section 5-2.)
4. Insert an alignment tape into the unit.

Adjusting Method

1. Put the unit in PLAY mode.
2. Check that there are no curls formed on the TG-1 upper flange.
If curled, rotate the upper flange in the counterclockwise direction, and adjust so that remove the curls.
3. Check that the tape runs along the TG-2 lower flange (no space between the two).
If it does not, rotate the upper flange in the counterclockwise direction, and adjust so that it normally runs along the TG-2 lower flange.
4. Check that the tape runs along the TG-3 upper flange (no space between the two).
If it does not, rotate the adjustment nut in the clockwise direction, and adjust so that it normally runs along the TG-3 upper flange.
5. Check that the tape runs along the TG-5 upper flange (no space between the two). If it does not, rotate the upper flange in the clockwise direction, and adjust so that it normally runs along the TG-5 upper flange.



5-3-3. TG-7 and TG-8 Guides Adjustment

Equipment and Tools

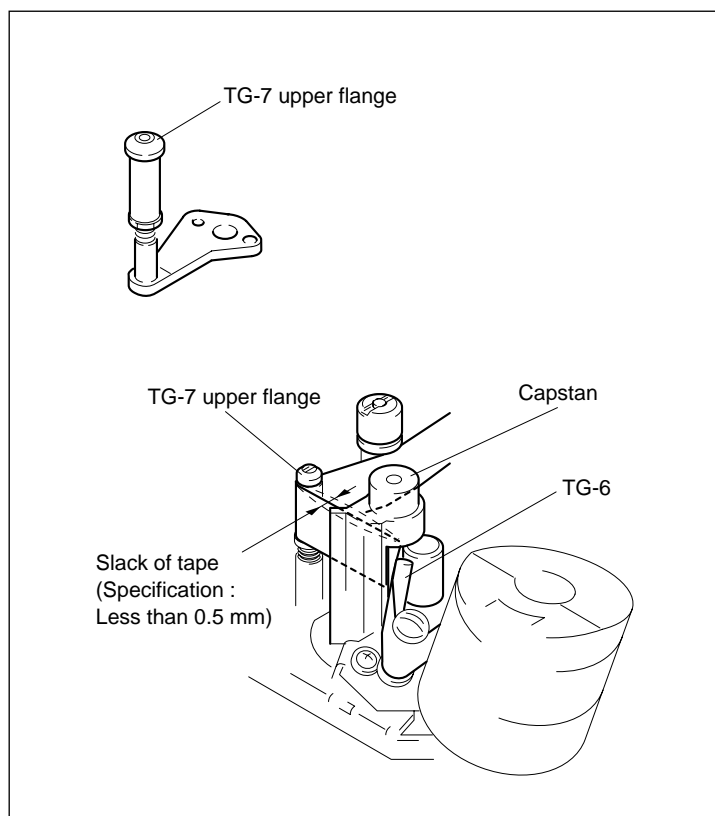
- Alignment tape, XH2-1AST
- RF extension tool
- Oscilloscope

Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
CH1: RF/RF extension tool (RF waveform)
CH2: JSW/RF extension tool (Switching waveform)
Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment.
(Refer to Section 5-2.)
4. Insert an alignment tape into the unit.

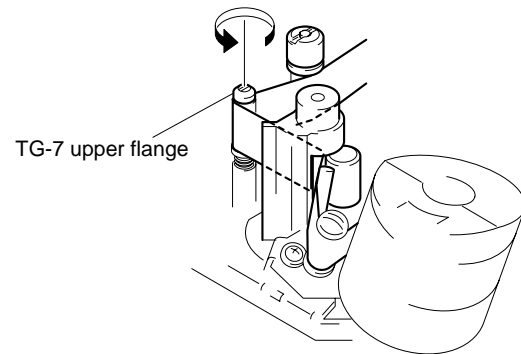
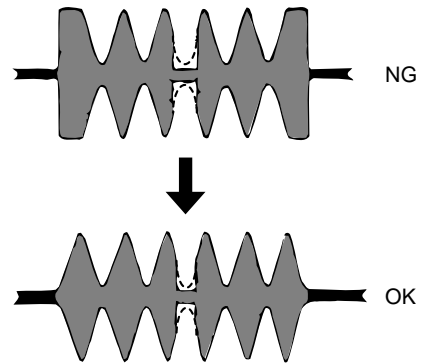
Adjusting Method

1. Put the unit in PLAY mode.
Check that the slack of the tape between the capstan and the TG-7 upper flange satisfies the specification.
If it does not, rotate the TG-7 upper flange, and adjust so that the tape does not slack.

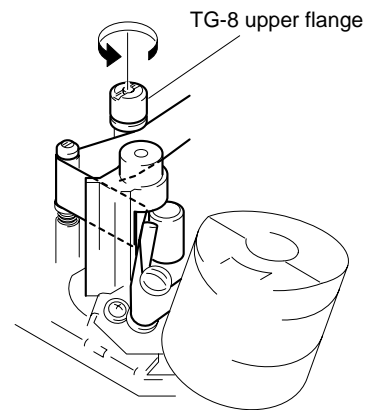


2. Put the unit in REVsearch mode.
Check the RF waveform at the exit.
If RF waveform is no good, rotate the TG-7
upper flange in the counterclockwise direction
by 90 °, and perform steps 1 and 2 again.

<RF waveform>



3. Put the unit in REV search mode. Check that no
curls are formed on the TG-8 upper flange.
If curls are formed, rotate the TG-8 upper flange
in the counterclockwise direction and remove
the curls.



5-3-4. Tracking Adjustment

Equipment and Tools

- Alignment tape, XH2-1AST
- RF extension tool
- Oscilloscope

Setting

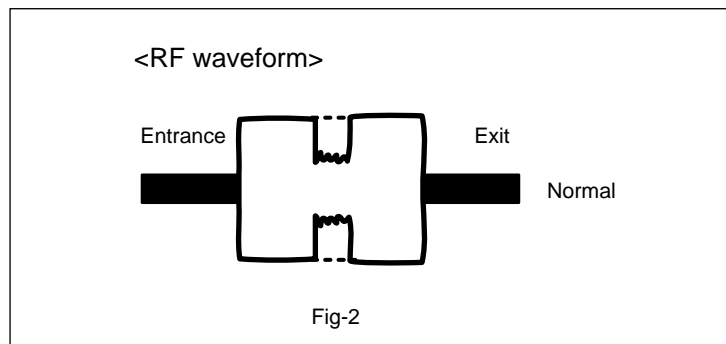
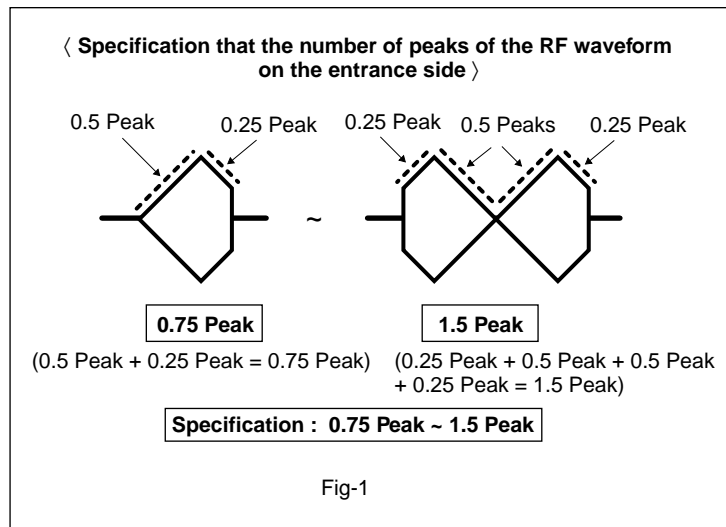
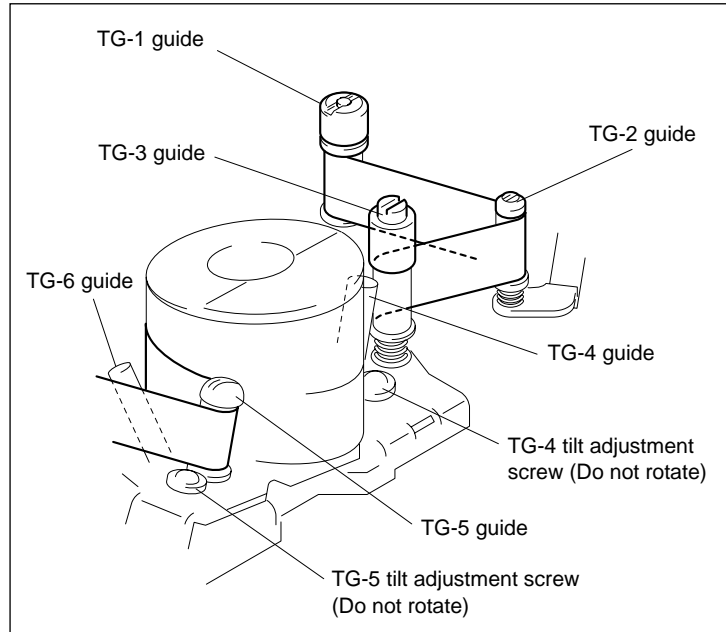
1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
CH1: RF/RF extension tool (RF waveform)
CH2: JSW/RF extension tool (Switching waveform)
Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment.
(Refer to Section 5-2.)
4. Insert an alignment tape into the unit.

Adjusting Method

1. Put the unit in PLAY mode.
2. Rotate the upper flange of the TG-3 guide and adjust the RF waveform on the entrance side becomes flat.
3. Rotate the upper the flange of the TG-3 guide in the counterclockwise direction by 180°, and check to see that the number of peaks of the RF waveform on the entrance side meets the specification. (Refer to Fig. 1)
4. If the number of peaks does not meet the specification, perform the following adjustment;
*In case the number is 1.5 or more
Rotate the upper flange of the TG-2 guide in the clockwise direction so that the number of peaks meets the specification.
*In case the number is 0.75 or less
Rotate the upper flange of the TG-2 guide in the counterclockwise direction so that the number of peaks meets the specification.
5. Rotate the upper flange of the TG-3 guide in the clockwise direction and adjust the RF waveform on the entrance side becomes flat.
(Refer to Fig. 2)

Notes

- Be sure to finish the adjustment by rotating the upper flange of the TG-3 guide in the clockwise direction.



- If rotating the upper flange of the TG-3 guide in the clockwise direction too much, return the upper flange back to the original position and re-start the adjustment. Finish it by rotating the upper flange in the clockwise direction.
6. Rotate the upper flange of the TG-5 guide and adjust the RF waveform on the exit side becomes flat. (Refer to Fig. 2)

Notes

- Be sure to finish the adjustment by rotating the upper flange of the TG-5 guide in the clockwise direction.
 - If rotating the upper flange of the TG-5 guide in the clockwise direction too much, return the upper flange back to the original position and re-start the adjustment. Finish it by rotating the upper flange in the clockwise direction.
 - Do not turn the tilt adjustment screws of the TG-4 and TG-5 guides
7. Put the unit in REV search mode, and check that there are no curls formed at the lower flange of the TG-2 guide. If curled, perform steps (1), (2) and (3) below.
 - (1) Rotate the upper flange of the TG-2 guide in the clockwise direction to remove the curls.
 - (2) Rotate the upper flange of the TG-3 guide in the counterclockwise direction by 180°, and check that the number of peaks of the RF waveform on the entrance side meets the specification. (Refer to Fig.1)
 - (3) If not satisfied the specification, perform steps 4 and step 5.

5-4. Check after Tracking Adjustment

Equipment and Tools

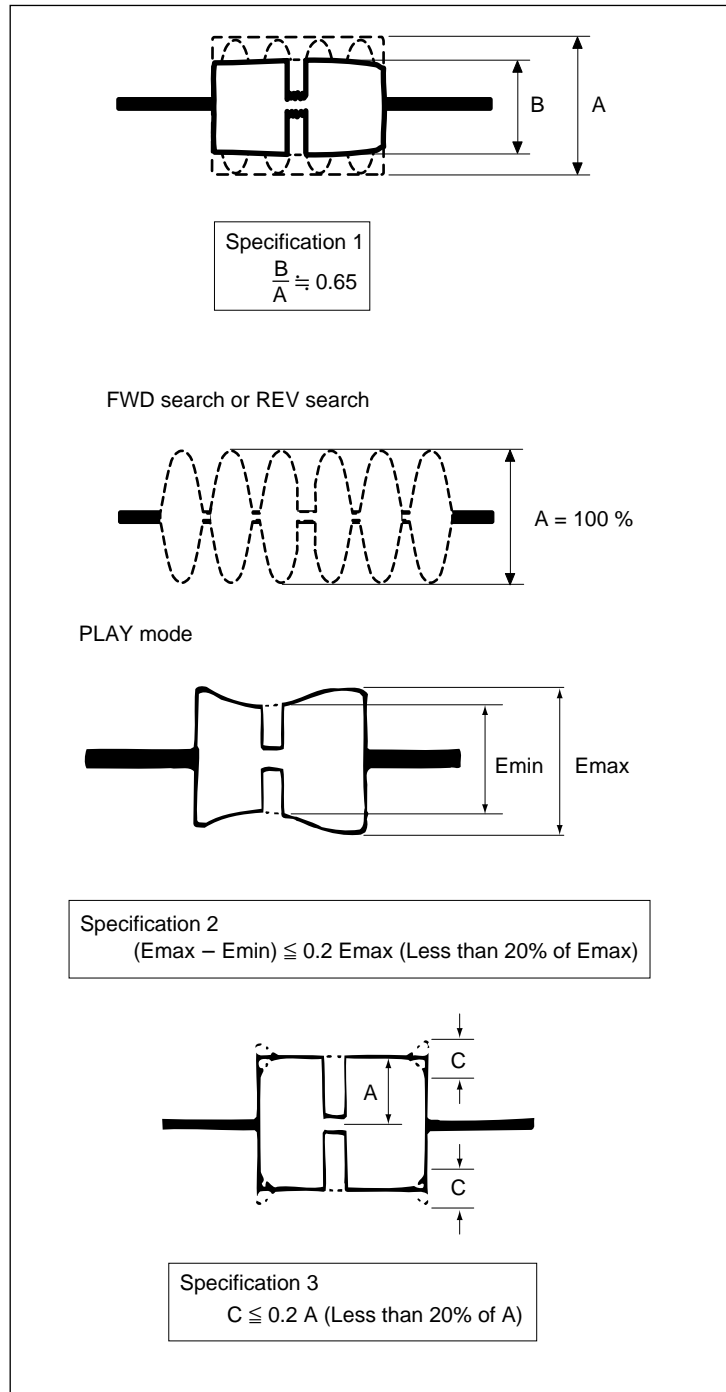
- Alignment tape, XH2-1AST
- RF extension tool
- Oscilloscope

Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
CH1: RF/RF extension tool (RF waveform)
CH2: JSW/RF extension tool (Switching waveform)
Trigger: CH2
3. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment.
(Refer to Section 5-2.)
4. Insert an alignment tape into the unit.
5. Perform checks Sections 5-4-1 to 5-4-4.

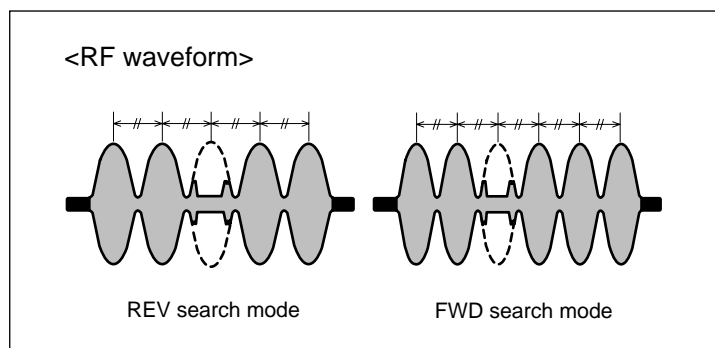
5-4-1. Tracking Check

1. Put the unit in FWD search/REV search mode, assuming that the output level of the RF waveform is A (= 100 %).
2. Put the unit in PLAY mode, assuming that the RF waveform output level is B (= 65 %).
3. Check that the A and B levels are Specification 1.
4. Check to see that the difference in the amplitude between Emax and Emin in the PLAY mode is less than 20 % Emax. (Specification 2)
5. Check to see that no significant fluctuations are observed in the waveform. (Specification 3)



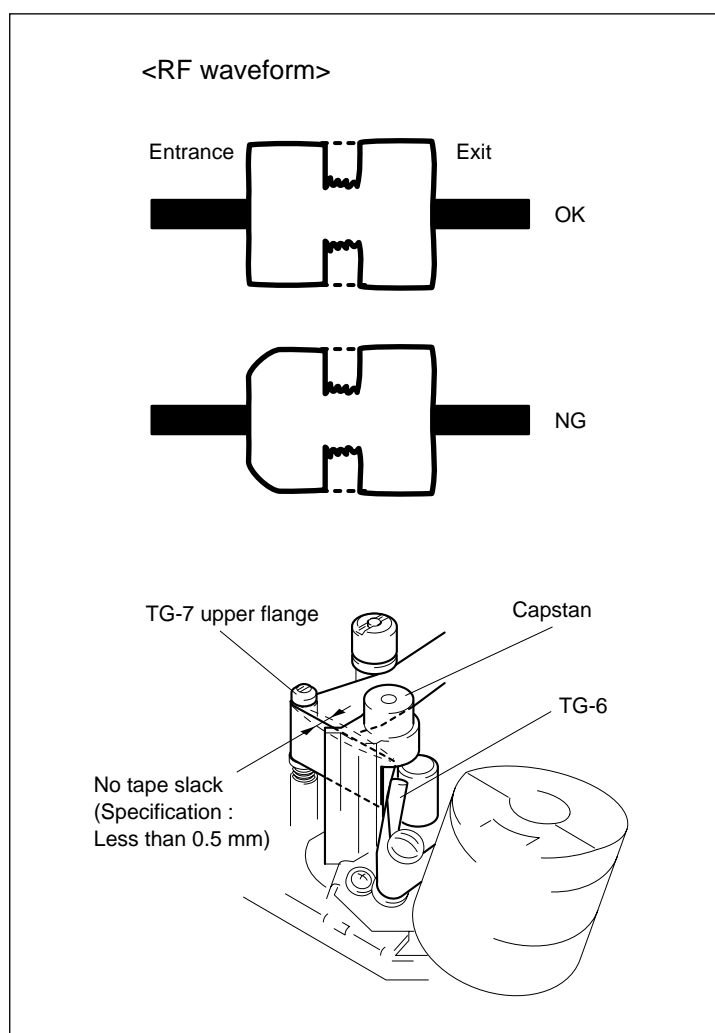
5-4-2. FWD Search and REV Search Check

1. Put the unit in REV search mode.
Check that the pitches of the peaks of the RF waveform are equal.
If not equal, perform 5-3-4. Tracking Adjustment again.
2. Put the unit in FWD search mode.
Check that the pitches of the peaks of the RF waveform are equal.
If not equal, perform 5-3-4. Tracking Adjustment.



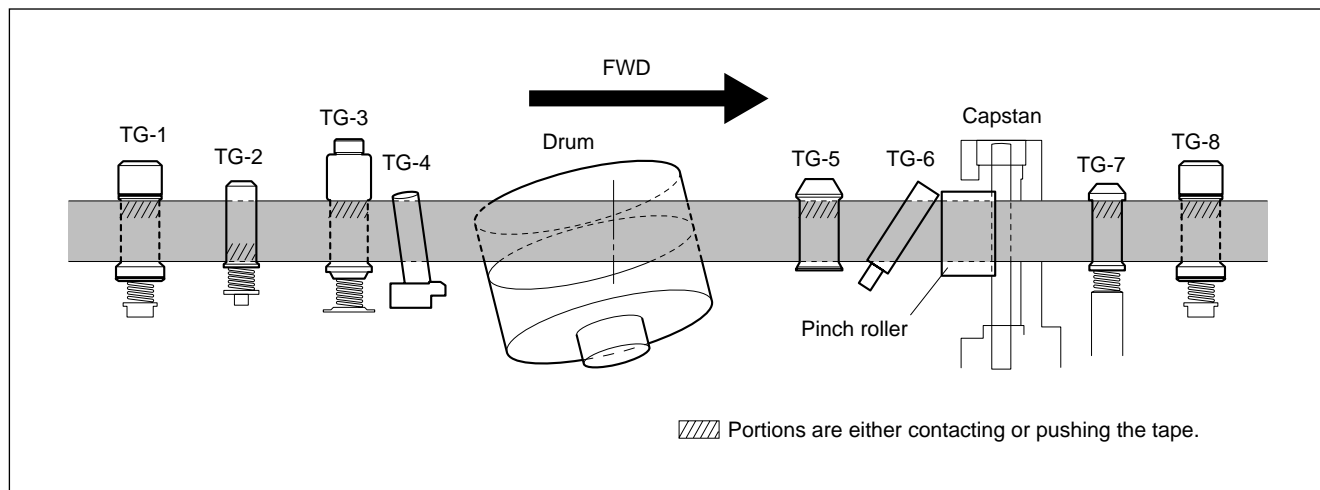
5-4-3. Rising Check

1. When the mode changed to PLAY mode from STOP mode, check that the RF waveform rises horizontally within three seconds (from when the RF waveform appears on the oscilloscope). Check that the tape does not slack near the capstan at this time.
2. When the PLAY mode is set after the FWD search/REV search mode, and FF/REW mode, check that the RF waveform rises horizontally within three seconds. Check that the tape does not slack near the capstan at this time.



5-4-4. Tape Path Check

1. Put the unit in FWD search/REV search mode, and check that there are no large curls on the TG-1 upper flange, TG-2 lower flange, TG-3 upper flange, TG-5 upper flange, TG-7 upper flange, and TG-8 upper flange.



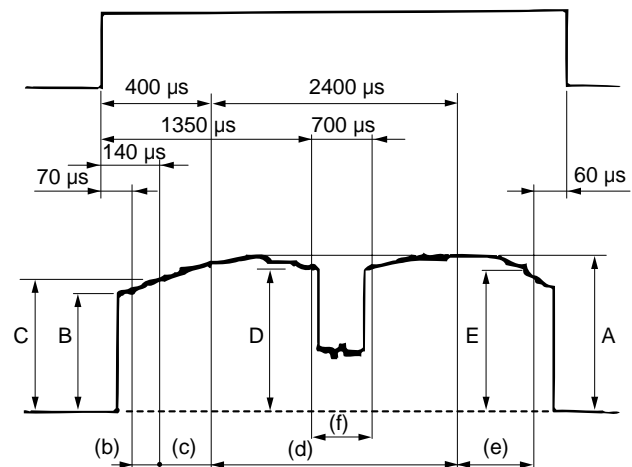
5-5. Check of Self-Recording Tape Playback

Equipment and Tools

- RF extension tool
- Blanking tape
- Oscilloscope
- Alignment tape, XH2-1AST

Setting

1. Connect the RF extension tool to CN775 of RP-91 board.
2. Connect the oscilloscope as follows.
CH1: RF/RF extension tool (RF waveform)
CH2: JSW/RF extension tool (Switching waveform)
Trigger: CH2
3. Insert the blanking tape into the unit.
4. Select maintenance menu No. 604-10, center ITI mode for tracking adjustment.
(Refer to Section 5-2.)
5. Put the unit in REC mode, and record the center ITI 10 MHz single signal to the tape from the top for three to ten minutes.



Specification

$$B \geq 0.65 A$$

$$C \geq 0.75 A$$

$$D \geq 0.8 A$$

$$E \geq 0.75 A$$

Overall max. value : A

Min. value between sections (b) : B

Min. value between sections (c) : C

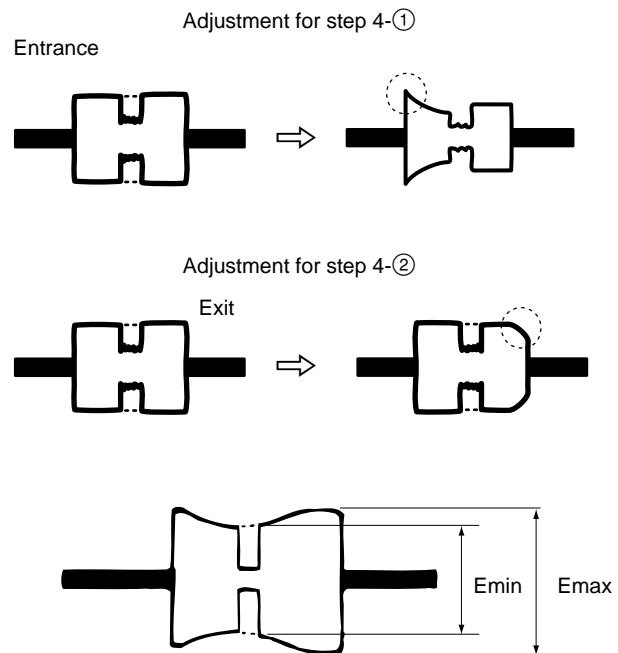
Min. value between sections (d) : D (Excluding between sections (f))

Min. value between sections (e) : E

Fig-1

Checking Method

1. Put the unit in PLAY mode and playback the portion recorded in the setting step 5.
2. Check that the tape runs along the TG-2 lower flange, the TG-3 upper flange, the TG-5 upper flange, and the TG-7 upper flange, and that no curls are found on the TG-1 upper flange, and the TG-8 upper flange.
(Refer to Sections 5-1-5 and 5-1-6.)
3. Verify that the RF waveform on the oscilloscope meets the specification. (Refer to Fig. 1)
4. If the RF waveform does not meet the specification, re-perform the adjustments, Section 5-3 Tracking Adjustment, and the following ① and ②.
 - ① In case that the RF waveform on the entrance side does not meet the specification during self-recording tape playback (Refer to Fig. 1)
 - Adjust the RF waveform on the entrance side to become flat by performing the tracking adjustment, and raise the RF waveform on the entrance side within the specification by rotating the flange of the TG-3 guide in the counter-clockwise direction. (Refer to Fig. 2)



Specification

$$(E_{\max} - E_{\min}) \leq 0.2 E_{\max} \text{ (Less than 20\% of } E_{\max} \text{)}$$

Fig-2

② In case that the RF waveform on the exit side does not meet the specification during self-recording tape playback (Refer to Fig. 1)

- Adjust the RF waveform on the exit side to become flat by performing the tracking adjustment, and lower the RF waveform on the exit side within the specification by rotating the flange of the TG-5 guide in the clockwise direction. (Refer to Fig. 2)

5. Put the unit in REC mode, and record the center ITI 10 MHz single signal to the tape from the top for three to ten minutes.
6. Put the unit in PLAY mode, and playback the portion recorded in the setting step 5.
7. Check that the tape runs along the TG-2 lower flange, the TG-3 upper flange, the TG-5 upper flange, and the TG-7 upper flange, and that no curls are found on the TG-1 upper flange, and the TG-8 upper flange.
(Refer to Sections 5-1-5 and 5-1-6.)
8. Check that the RF waveform meets the specification on the oscilloscope.
(Refer to Fig-1)



5-6. Switching Position Adjustments

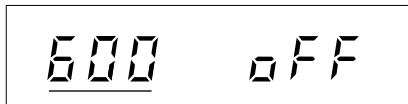
Tools

Alignment tape XH5-1A (for DSR-300A)

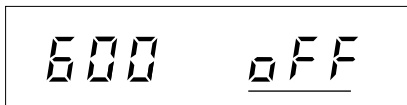
Alignment tape XH5-1AP (for DSR-300AP)

Checking Method

1. Check that there is no tape in the unit.
2. Set the maintenance menu, and select Menu No. 607.
- (1) Press the MENU button while pressing the SHIFT button, then release the SHIFT button first, and release the MENU button after more than 1 second.
The display window (LCD) will display as follows.
(Characters underlined on the display window (LCD) in the description of operations hereafter indicate that they are blinking.)



- (2) Press the RESET (MENU SET) button once so that "oFF" blinks.
The display window (LCD) will display as follows.



Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

- (3) Press the ADVANCE button once, and select "on."
The display window (LCD) will display as follows.



Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

- (4) Press the RESET (MENU SET) button once.
The display window (LCD) will display as follows.



Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

- (5) Press the ADVANCE button or SHIFT button to display Menu No. 605.
The display window (LCD) will display as follows.



Each time the ADVANCE button is pressed, Menu Nos. are changed as follows.

600 → 601 → 603 → ... → 513 → 600 → 601 → ...

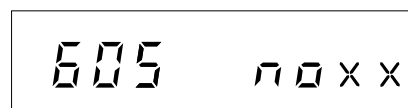
Each time the SHIFT button is pressed, Menu Nos. are changed as follows.

600 → 513 → 509 → ... → 601 → 600 → 513 → ...

3. Press the RESET (MENU SET) button.
4. Insert the alignment tape XH5-1A/XH5-1AP into the unit. An adjustment is automatically performed, and after the completion of the adjustment, the tape is automatically ejected.
5. Check that the display window (LCD) displays as follows.



If the display window (LCD) displays as follows, exit menu No. 605 once, and perform after step 3 again.
If the problem is still not solved on the display window (LCD), check if the unit is failure or not.



XX: 30 → Servo lock can not be executed in the playback.

31 → Cannot read adjustment data.

ED → Cannot save data.

Fd → Menu not supported.

FE → Adjustment prohibited (E.g.: Tape loaded).

<Items to be checked>

- Has the tape path adjustment been performed correctly?
- Is a head clogged?

6. Press the MENU button to exit the maintenance menu.
The display window (LCD) will return to the state before the maintenance menu was displayed.

Section 6

Electrical Alignment Overview

6-1. Adjustment Part

FP-81 Board

CV200	Clock Frequency Adjustment	8-1
RV600	Limiter Level Adjustment	11-5
RV700	CH-1 Audio Level Volume Reference Position Adjustment	11-5
RV800	CH-2 Audio Level Volume Reference Position Adjustment	11-5
RV902	CH-1 Monitor Output Level (LINE OUT Level) Adjustment	11-5
RV903	CH-2 Monitor Output Level (LINE OUT Level) Adjustment	11-5

IV-50 Board

RV051	REC R-Y Y/C Delay Adjustment	7-30
RV051	R-Y Y/C Delay Adjustment	12-14
RV051	REC R-Y Y/C Delay Adjustment	12-37
RV101	REC B-Y Y/C Delay Adjustment	7-32
RV101	B-Y Y/C Delay Adjustment	12-16
RV101	REC B-Y Y/C Delay Adjustment	12-39

VA-172/172P/205B/205C Board

CT202	13.5 MHz Frequency Adjustment	12-5
CT421	4FSC Frequency Adjustment	12-5
CT501	INT 13.5 MHz Adjustment	12-11
RV221	PB SYNC B-Y Y/C Delay Adjustment	12-7
RV221	PB B-Y Y/C Delay Adjustment	12-28
RV222	PB R-Y Y/C Delay Adjustment	12-9
RV222	PB R-Y Y/C Delay Adjustment	12-30
RV452	PB SYNC Phase Adjustment	12-6
RV452	PB SYNC Phase Adjustment	12-27

Electrical Alignment After Replacement Boards

Electrical Alignment After Replacement Boards describes the adjustment using the (1) camera tool EW-783, analog component camera DXC-637/637P and that using the (2) digital camera DXC-D30/D30P.

Although both (1) and (2) adjustments can be performed, the method by (1) is recommended.

6-2. Required Equipment

Measure Equipments

Equipment	Equivalent	Note
Ocilloscope	Tektronix 2445B	More than 200 MHz
Component Signal Generator	Tektronix TSG-300	Component SG
Frequency Counter	Iwatsu SC-7102 or equivalent	
Audio Signal Generator	HEWLETT PACKARD HP 8904	Sine wave DC to 600 kHz
Audio Level Meter	HEWLETT PACKARD HP 3400A	

Tool

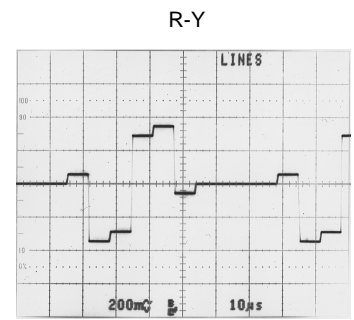
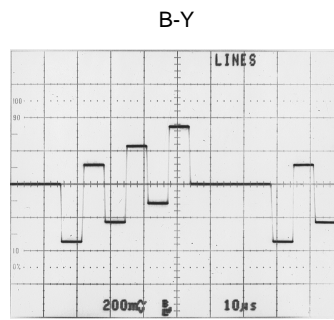
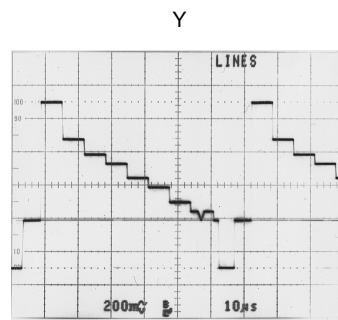
Tool	Equivalent	Note
DC Power Supply	SONY CMA-8/8A or AC-500/550	
Extension Board	DJ-174, SONY Part No. J-6441-740-A	
Blanking Tape	SONY PDVM-40ME or equivalent	Standard Products
Alignment Tape	XH5-1A, SONY Part No. 8-967-999-21 (DSR-1) XH5-1AP, SONY Part No. 8-967-999-25 (DSR-1P)	
Video Cable (S-BNC)	SONY Part No. J-6381-380-A	
Camera Tool	EW-783, SONY Part No. J-6337-830-A	

6-3. Test Signal

<For DSR-1>

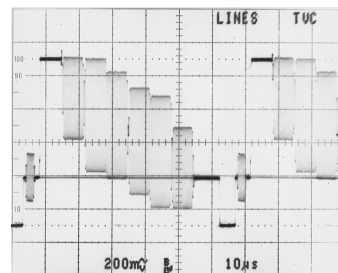
Component Signal Generator

75 % COLOR BARS

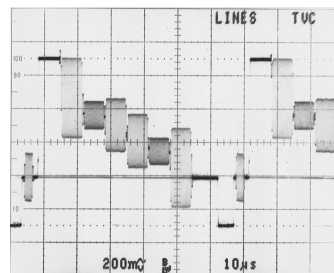


Alignment Tape XH5-1A

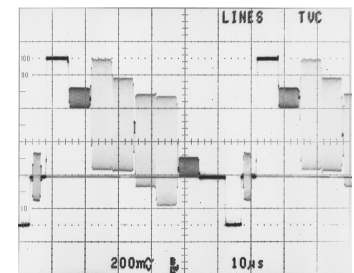
75 % FULL COLOR BARS



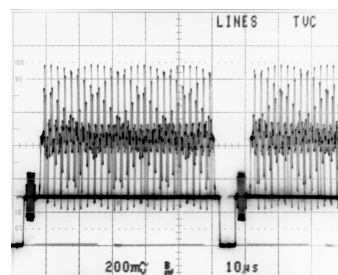
75 % FULL COLOR BARS
R-Y ch off



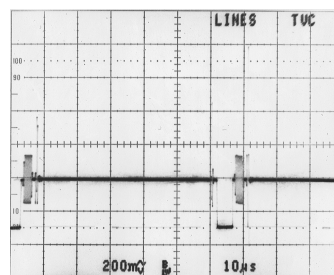
75 % FULL COLOR BARS
B-Y ch off



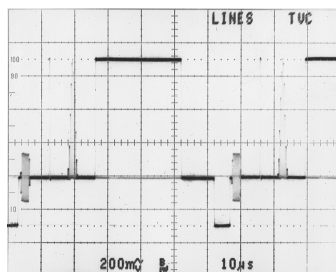
BOWTIE



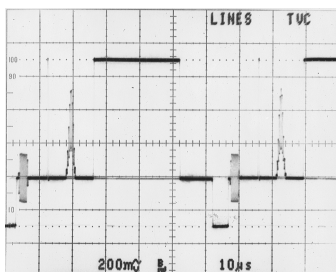
BLANKING MARKER



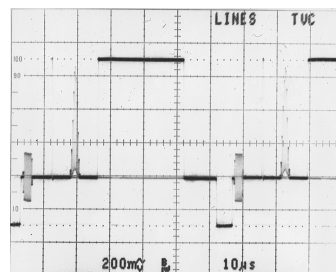
PULSE & BAR



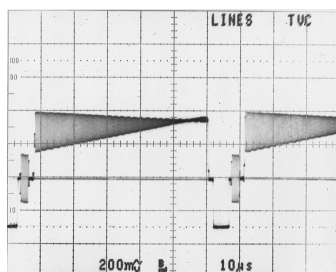
PULSE & BAR
R-Y off



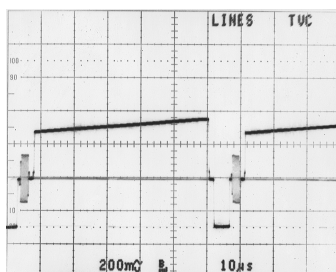
PULSE & BAR
B-Y off



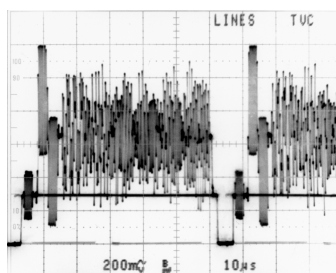
SHALLOW RAMP



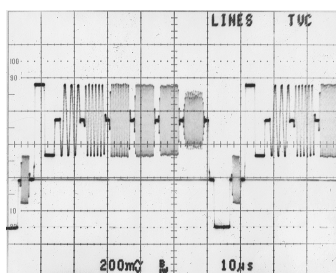
SHALLOW RAMP
B-Y/R-Y ch off



MULTI BURST



MULTI BURST
B-Y/R-Y ch off

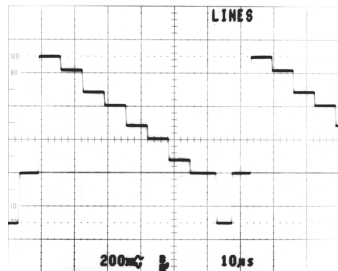


<For DSR-1P>

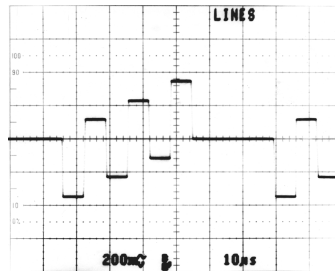
Component Signal Generator

100% COLOR BARS

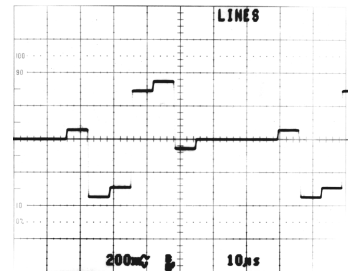
Y



B-Y

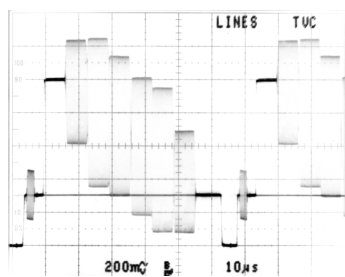


R-Y



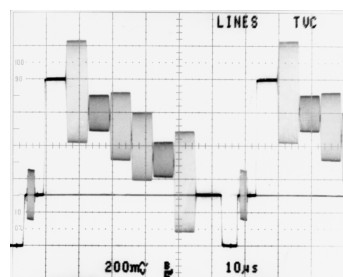
Alignment Tape XH5-1AP

100 % FULL COLOR BARS



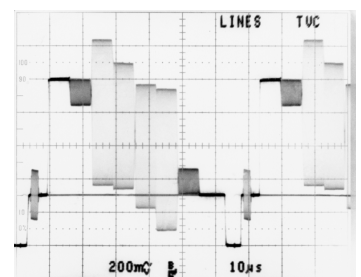
100 % FULL COLOR BARS

R-Y ch off

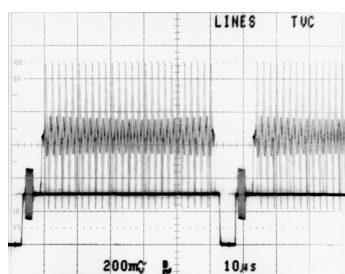


100 % FULL COLOR BARS

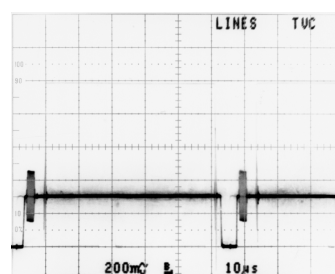
B-Y ch off



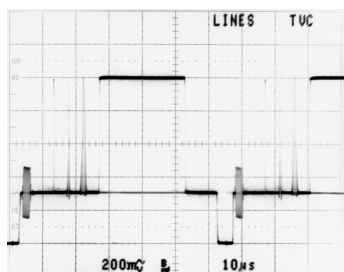
BOWTIE



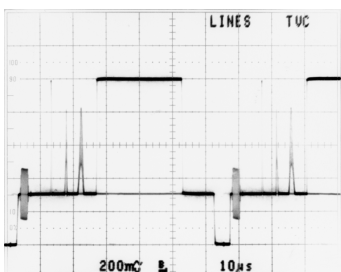
BLANKING MARKER



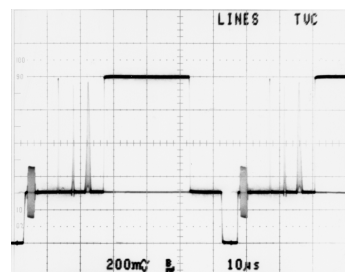
PULSE & BAR



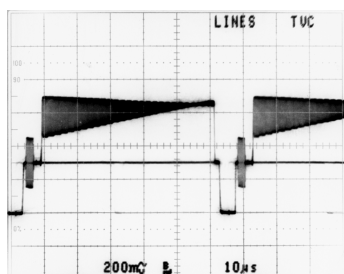
PULSE & BAR
R-Y off



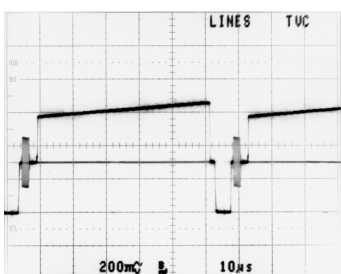
PULSE & BAR
B-Y off



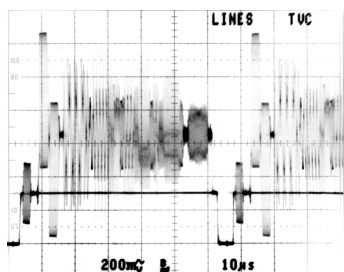
SHALLOW RAMP



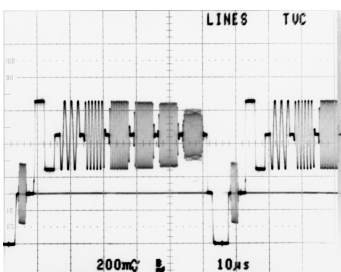
SHALLOW RAMP
B-Y/R-Y ch off



MULTI BURST



MULTI BURST
B-Y/R-Y ch off



Section 7

Electrical Alignment After Replacement Boards

Equipment Required

- Oscilloscope (Tektronix 2445B/200 MHz or equivalent)
- Component signal generator (Tektronix TSG300A or equivalent)
- Frequency counter (Iwatsu SC-7102 or equivalent)
- Camera tool EW-783 (SONY Part No. J-6337-830-A)
- DC power supply (SONY AC-500/550 or CMA-8/8A)
- Blanking tape (SONY PDVM-40ME or equivalent)
- Alignment tape XH5-1A (SONY Part No. 8-967-999-21 : for DSR-1)
- Alignment tape HX5-1AP (SONY Part No. 8-967-999-25 : for DSR-1P)
- S-BNC video cable (SONY Part No. J-6381-380-A)

Alignment Tape Contents

XH5-1A (SONY Part No. 8-967-999-21 : for DSR-1)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO	
Black burst	23 : 59 : 00	60	No signal	
75 % full color bars	00 : 00	60	1 kHz	
60 % multi burst	01 : 00	60	20 Hz	
Bowtie with mod 12.5T	02 : 00	30	14.5 kHz	
Shallow ramp	02 : 30	30	10 kHz	
	03 : 00	30	No signal	
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS	
Line 17	04 : 00	40	1 ch	1 kHz
75 % full color bars	04 : 40	40	2 ch	
Quad phase	05 : 20	40	3 ch	
	06 : 00	40	4 ch	
Black burst	06 : 40	5	No signal	
	06 : 45	5		
60 % multi burst (for composite)	06 : 50	60	1 kHz	
Mod 12.5T	07 : 50	30	20 Hz	
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz	
	08 : 50	30	10 kHz	
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS	
Chroma noise	09 : 50	30	1 kHz	
Line 17	10 : 20	30		
75 % full color bars	10 : 50	180		
60 % multi burst	13 : 50	60		
Mod 12.5T	14 : 50	30		
Shallow ramp	15 : 20	60		
75 % full color bars	16 : 20	100		
75 % full color bars (R-Y OFF)	18 : 00	180		
75 % full color bars (B-Y OFF)	21 : 00	180		
Blanking marker	24 : 00	180		
Line 17 (R-Y OFF)	27 : 00	180		
Line 17 (B-Y OFF)	30 : 00	180		

* Audio levels are -20 dBFS (Reference), except 1 kHz 0 dBFS part.

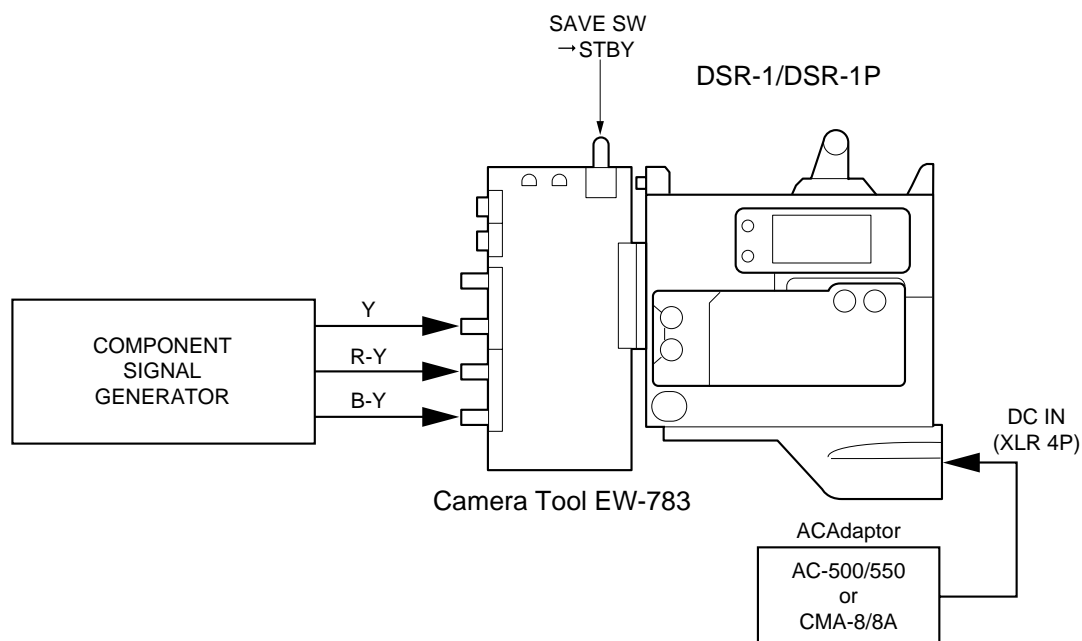
XH5-1AP (Sony Part No. 8-967-999-25: for DSR-1P)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO		
Black burst	23 : 59 : 00	60	No signal	32 kHz 4 ch	
100 % full color bars	00 : 00	60	1 kHz		
60 % multi burst	01 : 00	60	20 Hz		
Bowtie with mod 10T	02 : 00	30	14.5 kHz		
Shallow ramp	02 : 30	30	10 kHz		
	03 : 00	30	No signal		
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS		
Line 17	04 : 00	40	1 ch		1 kHz
100 % full color bars	04 : 40	40	2 ch		
Quad phase	05 : 20	40	3 ch		
	06 : 00	40	4 ch		
Black burst	06 : 40	5	No signal		
	06 : 45	5			
60 % multi burst (for composite)	06 : 50	60	1 kHz		
Mod 10T	07 : 50	30	20 Hz		
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz		
	08 : 50	30	10 kHz		
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS		
Chroma noise	09 : 50	30	1 kHz		
Line 17	10 : 20	30			
100 % full color bars	10 : 50	180			
60 % multi burst	13 : 50	60			
Mod 10T	14 : 50	30			
Shallow ramp	15 : 20	60			
100 % full color bars	16 : 20	100			
100 % full color bars (R-Y OFF)	18 : 00	180			
100 % full color bars (B-Y OFF)	21 : 00	180			
Blanking marker	24 : 00	180			
Line 17 (R-Y OFF)	27 : 00	180			
Line 17 (B-Y OFF)	30 : 00	180			

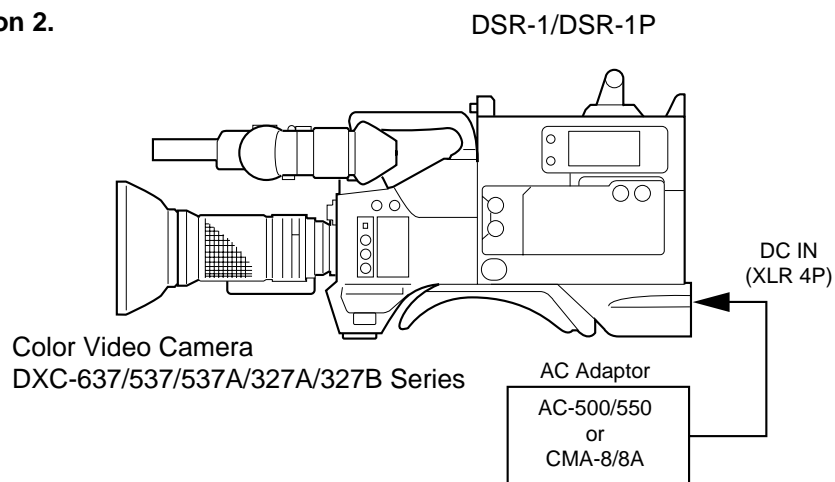
* Audio levels are -18 dBFS (Reference), except 1 kHz 0 dBFS part.

Connection of Equipment

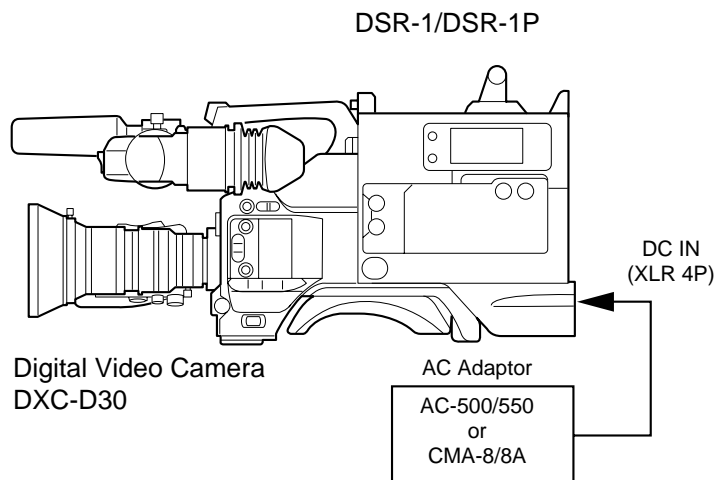
Connection 1.



Connection 2.



Connection 3.



Pre-Adjustment Switch Settings

• R panel

AUDIO IN switch CH-1 (S700/FP-81) : REAR
 AUDIO IN switch CH-2 (S800/FP-81) : REAR
 MONITOR SELECT switch (S900/FP-81) : MIX
 AUDIO SELECT switch CH-1 (S702/FP-81) : MANUAL
 AUDIO SELECT switch CH-2 (S802/FP-81) : MANUAL
 ALARM VR (RV901/FP-81) : Fully in clockwise direction

MONITOR VR (RV900/FP-81) : Fully in counterclockwise direction

LIGHT (S203/FP-81) : ON
 DISPLAY switch (S200/FP-81) : TC
 TC mode switch 2 (S006/FP-81) : F-RUN
 TC mode switch 1 (S007/FP-81) : PRESET
 BACK TALLY switch (S005/FP-81) : ON

• REAR panel

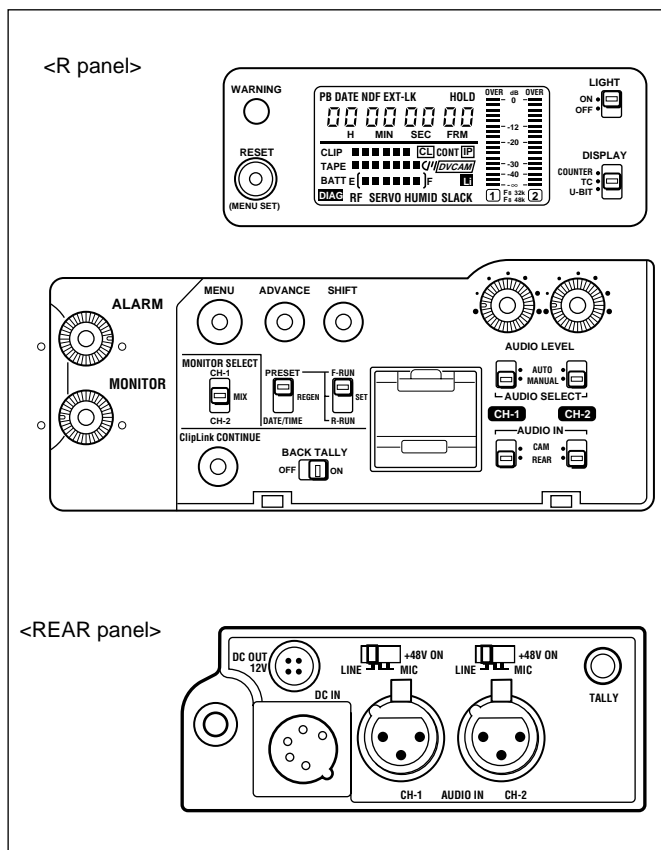
+48 V CH-1 (S101/CP-283) : LINE
 +48 V CH-2 (S102/CP-283) : LINE

Note

Unless specified otherwise for each adjustment, do not move the above switches and knobs.

Precautions for Adjustments

- Blank tape means a cassette tape which has been totally erased and can be recorded.
- The alignment tape can roughly be used for 50 times. It is recommended that it be marked for reference.
- Terminate at 75 Ω when measuring S-VIDEO OUT and VIDEO OUT.



7-1. VA-172/172P/205B/205C Board

- (1) When using the camera tool EW-783, analog component camera DXC-637/637P or equivalent

Maintenance Menu Setting

1. Press the MENU button while pressing the SHIFT button, and release the SHIFT button while pressing the MENU button.
Check that the display window (LCD) displays “600_off” after about one second, and release the MENU button.
2. Press the RESET button so that the “off” displayed blinks, and press the ADVANCE button to show “on”.
3. Press the RESET button so that “600” displayed blinks. This enables the maintenance menu to be set. (Hereafter change the MENU number by pressing the ADVANCE button or SHIFT button, and determine the MENU number by pressing the RESET button.)

Note

Refer to 2-25. Menu for details.

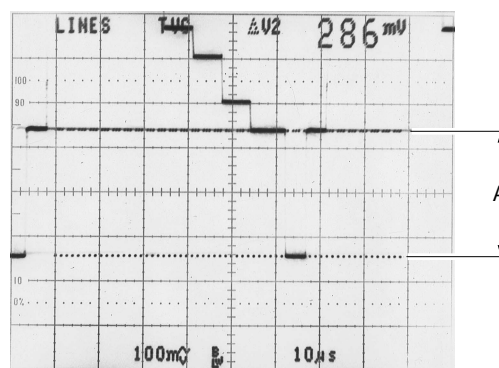
7-1-1. Encoder Y SYNC Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP <DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 620
Measuring point : S-VIDEO (Y) OUT
VTR MODE : PB
Tape : Alignment tape
75 % FULL COLOR BARS <DSR-1>
100 % FULL COLOR BARS <DSR-1P>
Specification : SYNC LEVEL
 $A = 286 \pm 4 \text{ mV p-p}$ <DSR-1>
 $A = 300 \pm 4 \text{ mV p-p}$ <DSR-1P>

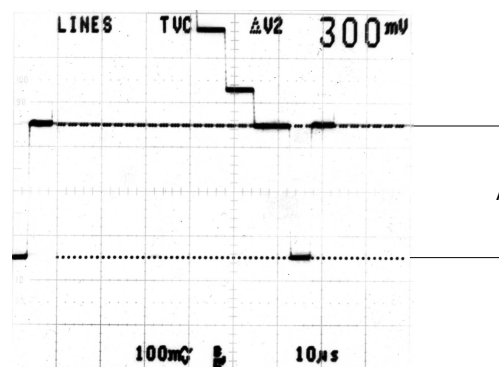
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button, and register the data.

<For DSR-1>



<For DSR-1P>



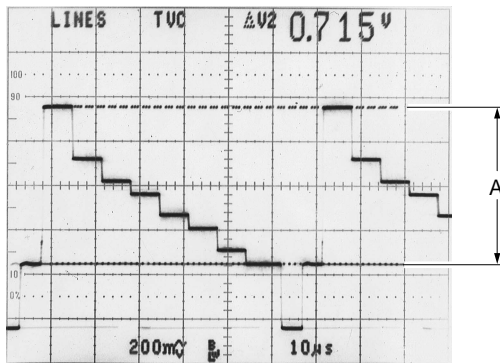
7-1-2. Encoder Y Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 621
Measuring point : S-VIDEO (Y) OUT
VTR MODE : PB
Tape : Alignment tape
75 % FULL COLOR BARS <DSR-1>
100 % FULL COLOR BARS <DSR-1P>
Specification : Y LEVEL
 $A = 714 \pm 5\text{mV p-p}$ <DSR-1>
 $A = 700 \pm 5\text{mV p-p}$ <DSR-1P>

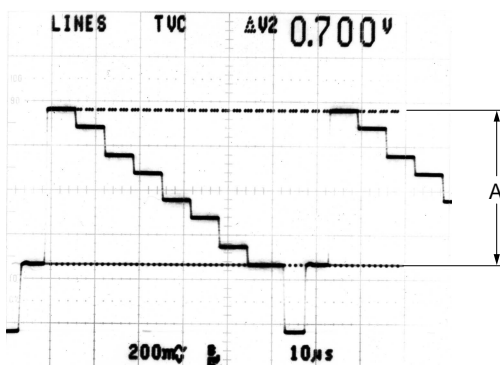
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button, and register the data.

<For DSR-1>



<For DSR-1P>



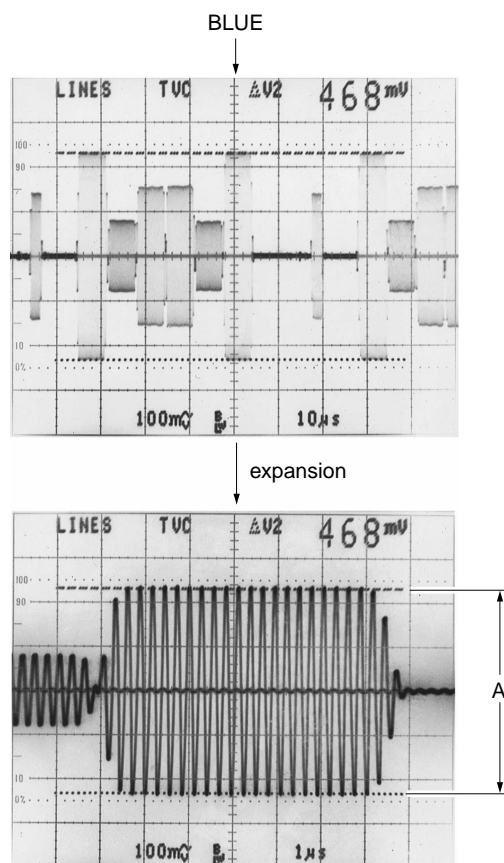
7-1-3. Encoder Chroma Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 622
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS
 (R-Y OFF) <DSR-1>
 100 % FULL COLOR BARS
 (R-Y OFF) <DSR-1P>
Specification : CHROMA (BLUE) LEVEL
 $A = 468 \pm 5 \text{ mV p-p}$ <DSR-1>
 $A = 612 \pm 5 \text{ mV p-p}$ <DSR-1P>

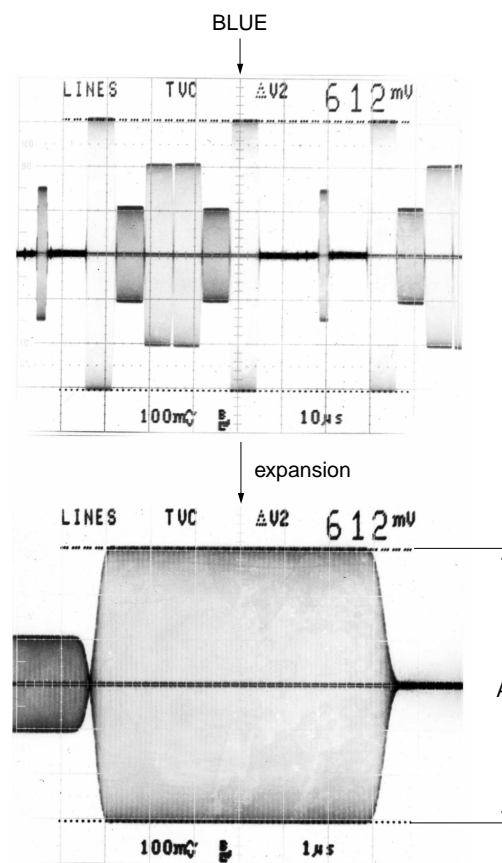
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button, and register the data.

<For DSR-1>



<For DSR-1P>



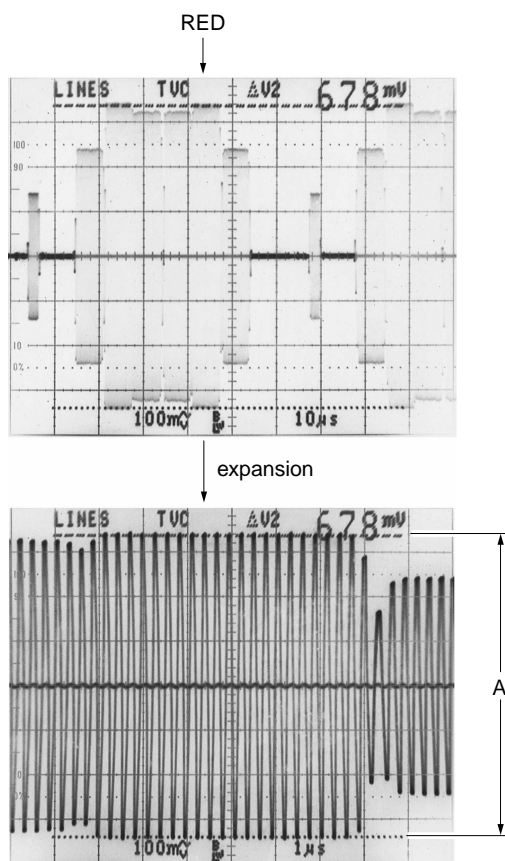
7-1-4. D/A R-Y Output Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 623
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS <DSR-1>
 100 % FULL COLOR BARS <DSR-1P>
Specification : CHROMA (RED) LEVEL
 $A = 678 \pm 5 \text{ mV p-p}$ <DSR-1>
 $A = 885 \pm 5 \text{ mV p-p}$ <DSR-1P>

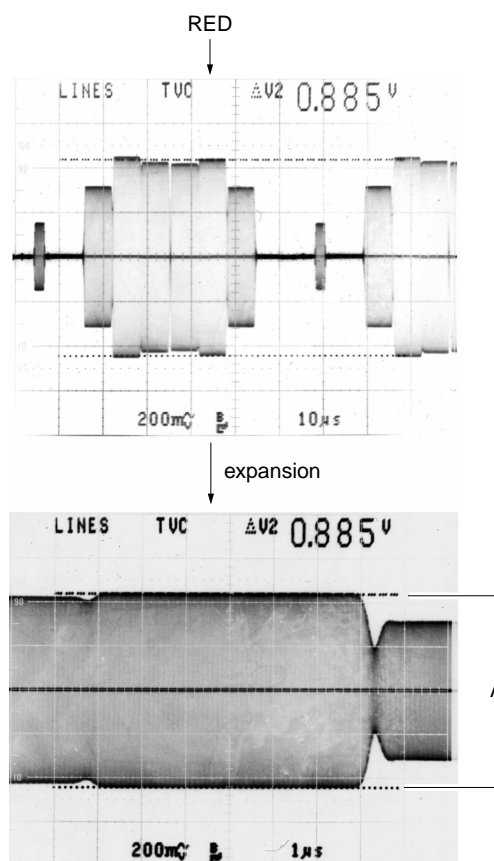
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button, and register the data.

<For DSR-1>



<For DSR-1P>



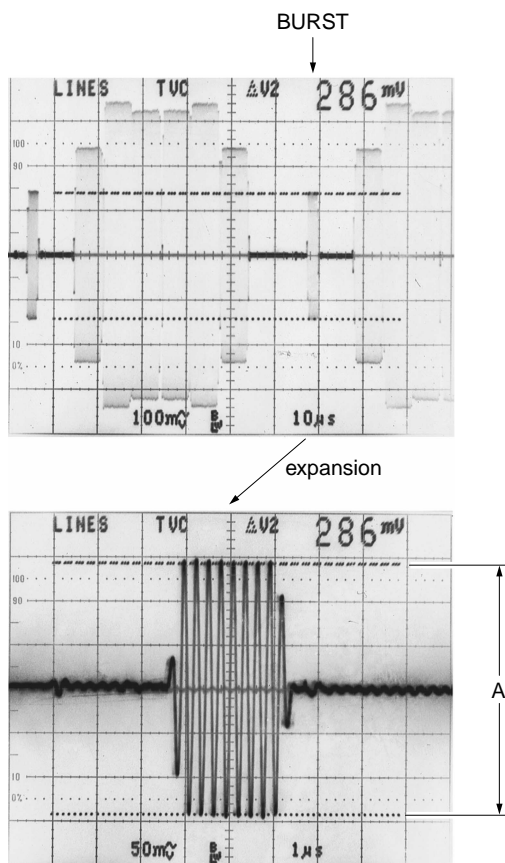
7-1-5. Encoder Burst Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 624
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS <DSR-1>
 100 % FULL COLOR BARS <DSR-1P>
Specification : BURST LEVEL
 $A = 286 \pm 3 \text{ mV p-p}$ <DSR-1>
 $A = 300 \pm 3 \text{ mV p-p}$ <DSR-1P>

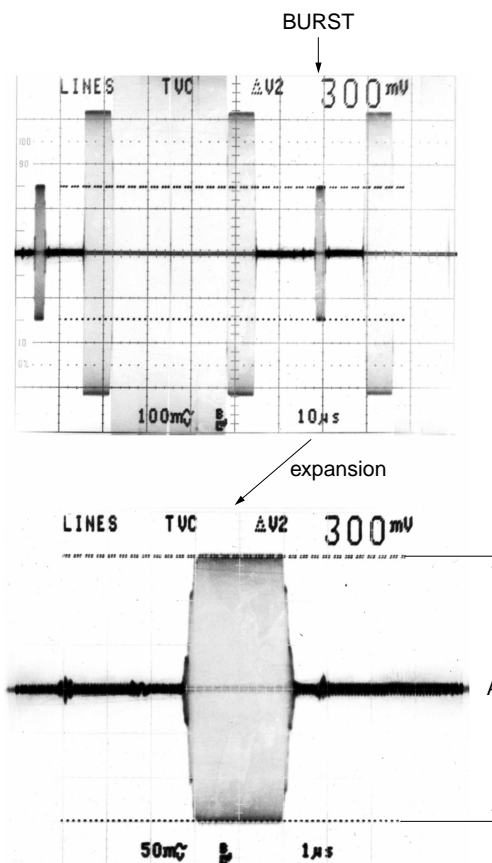
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button, and register the data.

<For DSR-1>



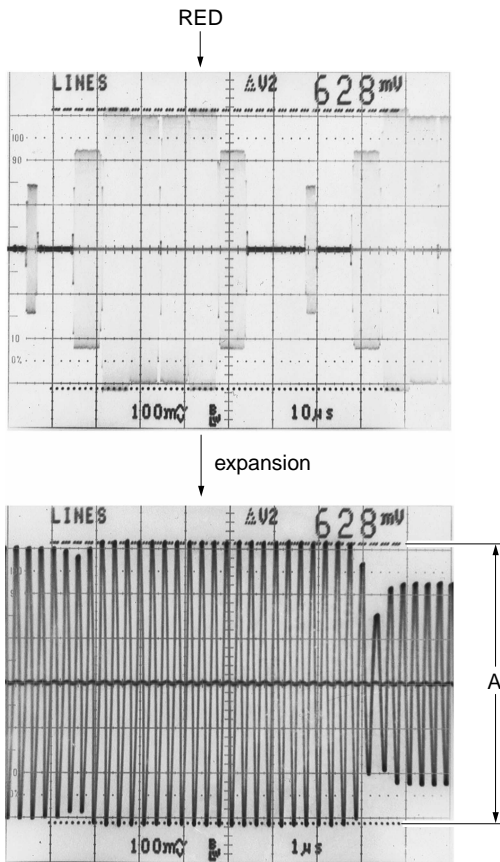
<For DSR-1P>



7-1-6. Encoder Chroma Level (Setup Adder on) Adjustment <For DSR-1 only>

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
MENU No. : 625
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
75 % FULL COLOR BARS
Specification : CHROMA (RED) LEVEL
A = 627 ±5 mV p-p

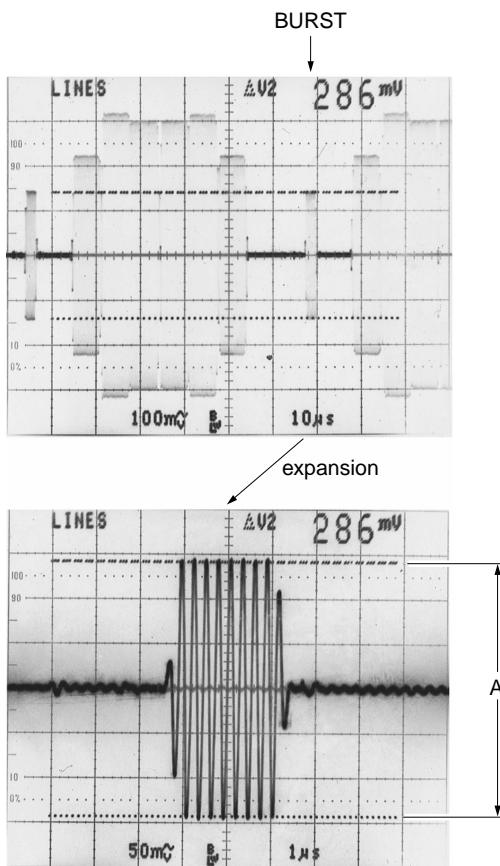
Adjusting method :
Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button, and register the data.



7-1-7. Encoder Burst Level (Setup Adder on) Adjustment <For DSR-1 only>

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
MENU No. : 626
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
75 % FULL COLOR BARS
Specification : BURST LEVEL
A = 286 ±3 mV p-p

Adjusting method :
Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button, and register the data.



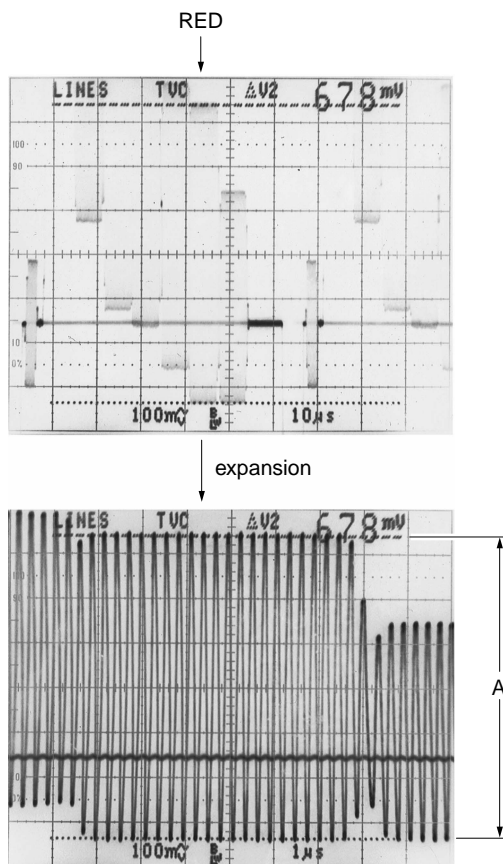
7-1-8. VBS Chroma Mix Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 627
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS <DSR-1>
 100 % FULL COLOR BARS <DSR-1P>
Specification : CHROMA (RED) LEVEL
 A = 678 ± 5 mV p-p <DSR-1>
 A = 885 ± 5 mV p-p <DSR-1P>

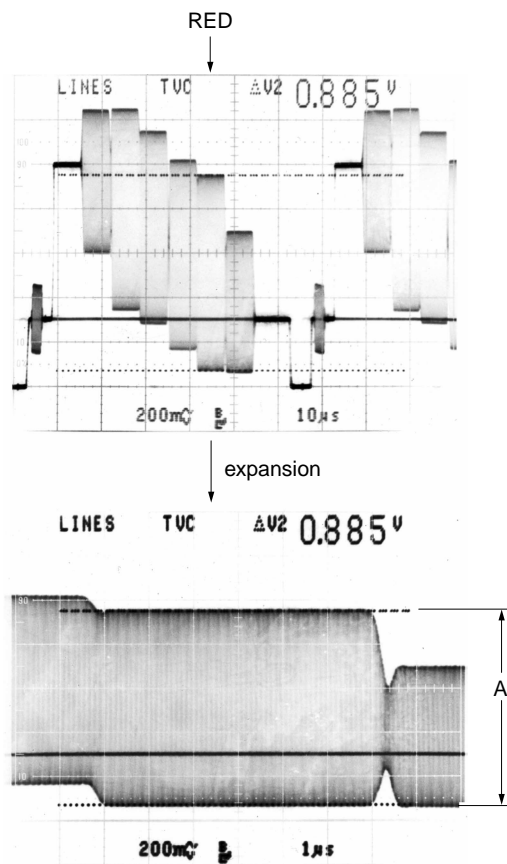
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button, and register the data.

<For DSR-1>



<For DSR-1P>



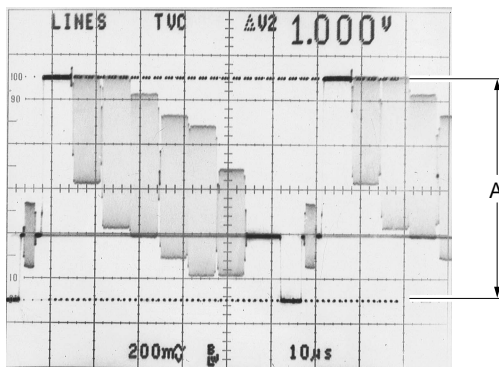
7-1-9. VBS Y Mix Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 628
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape
75 % FULL COLOR BARS <DSR-1>
100 % FULL COLOR BARS <DSR-1P>
Specification : VIDEO LEVEL
 $A = 1.00 \pm 0.01 \text{ V p-p}$

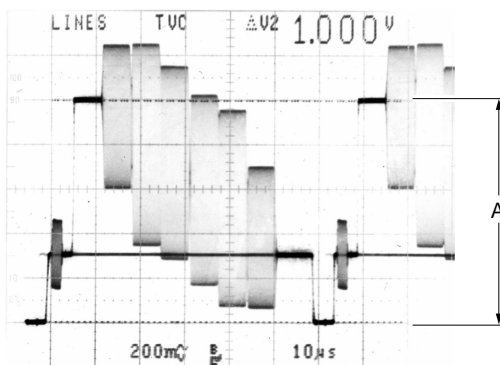
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button, and register the data.

<For DSR-1>



<For DSR-1P>



7-1-10. A/D Y Clamp Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 632
Measuring point : None
VTR MODE : EE
Adjusting method :
Press the RESET button after waiting for the two digits on the right of the display window (LCD) to show 0F or 10, and register the data.

7-1-11. A/D Y Input Level Adjustment

Note

Before performing this adjustment, be sure to perform 7-1-10. A/D Y Clamp Level Adjustment.

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 633
Measuring point : None
VTR MODE : EE
Adjusting method :
Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “EA” on the right. Then press the RESET button to register the data.

7-1-12. A/D R-Y Input Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 634
Measuring point : None
VTR MODE : EE
Adjusting method :
Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “2B (DSR-1), 10 (DSR-1P)” on the right. Then press the RESET button to register the data.

7-1-13. A/D B-Y Input Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 635
Measuring point : None
VTR MODE : EE
Adjusting method :

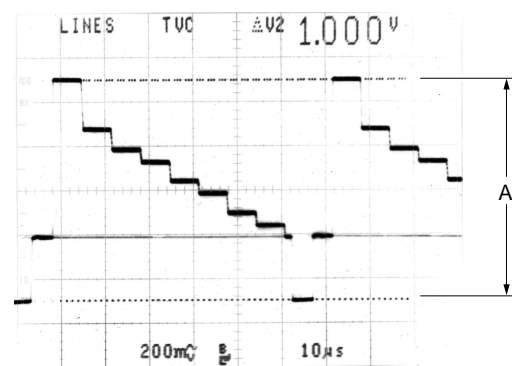
Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “2B (DSR-1), 10 (DSR-1P)” on the right. Then press the RESET button to register the data.

7-1-14. EE Y Level Adjustment

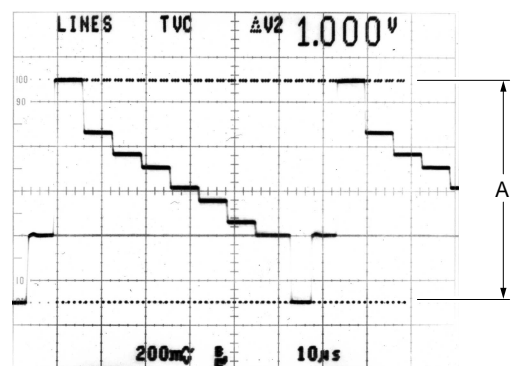
Connection : Connection 2
Input signal : Incorporated COLOR BARS
MENU No. : 638
Measuring point : S-VIDEO (Y) OUT
VTR MODE : EE
Tape : Not required
Specification : VIDEO LEVEL A = 1.00 ± 0.01 V p-p
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied.
 Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



7-1-15. EE Chroma Level Adjustment

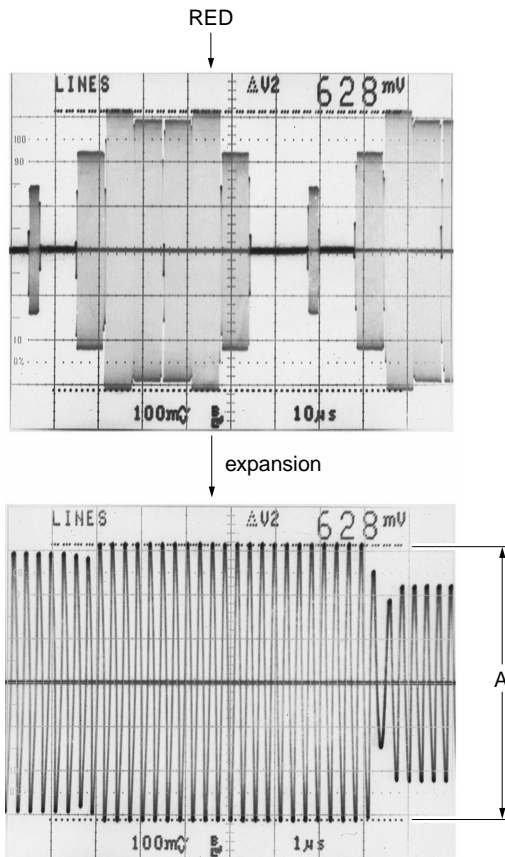
Connection : Connection 2
Input signal : Incorporated COLOR BARS
MENU No. : 639
Measuring point : S-VIDEO (C) OUT
VTR MODE : EE
Tape : Not required
Specification : CHROMA (RED) LEVEL
 <DSR-1>
 $A = 627 \pm 5 \text{ mV p-p}$ <CAMERA: UC>
 $A = 678 \pm 5 \text{ mV p-p}$ <CAMERA: J>
 <DSR-1P>
 $A = 664 \pm 5 \text{ mV p-p}$

Adjusting method :

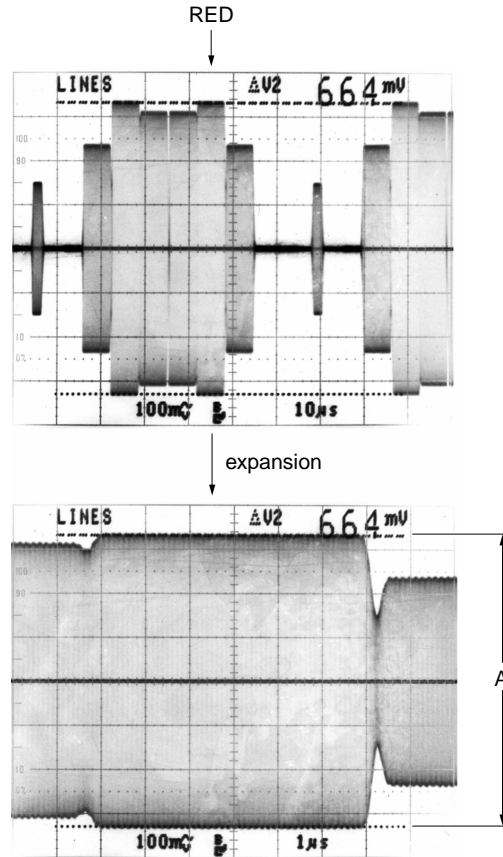
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



(2) When using the digital camera DXC-D30/D30P

Maintenance Menu Settings

1. Press the MENU button while pressing the SHIFT button, and release the SHIFT button while pressing the MENU button. Check that the display window (LCD) displays “600_off” after about 1 second later, and then release the MENU button.
2. Press the RESET button so that the “off” displayed blinks, and press the ADVANCE button to display the “on”.
3. Press the RESET button so that the “600” displayed blinks. This will enable the maintenance menu to be set.
(Hereafter press the ADVANCE button or SHIFT button to change the Menu No. and press the RESET button to set the Menu No.)

Note

Refer to 2-25. Menu for details.

7-1-16. Encoder Y SYNC Level Adjustment

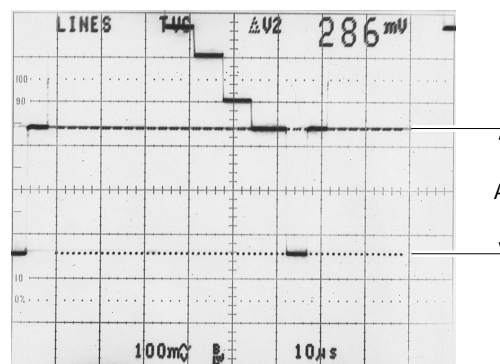
Connection : Connection 3 (PRO 76P DIGITAL)
Input signal : Incorporated COLOR BARS
MENU No. : 640
Measuring point : S-VIDEO (Y) OUT
VTR MODE : PB
Tape : Blanking tape
Specification : SYNC LEVEL
 $A = 286 \pm 4 \text{ mV p-p}$ <DSR-1>
 $A = 300 \pm 4 \text{ mV p-p}$ <DSR-1P>

Adjusting method :

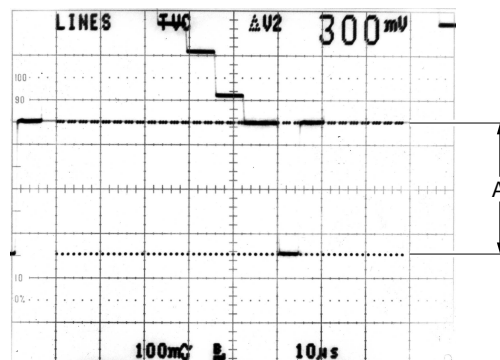
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



7-1-17. Encoder Y Level Adjustment

Connection : Connection 3 (PRO 76P DIGITAL)

Input signal : Incorporated COLOR BARS

MENU No. : 641

Measuring point : S-VIDEO (Y) OUT

VTR MODE : PB

Tape : Blanking tape

Specification : Y LEVEL

$A = 714 \pm 5 \text{ mV p-p}$ <DSR-1>

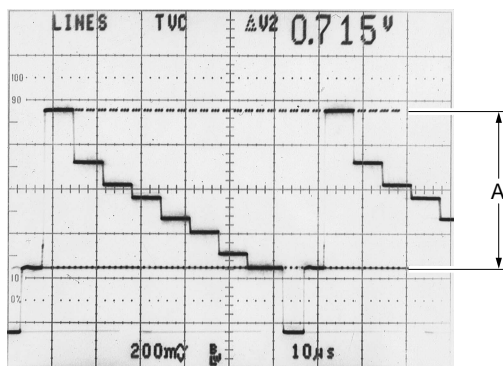
$A = 700 \pm 5 \text{ mV p-p}$ <DSR-1P>

Adjusting method :

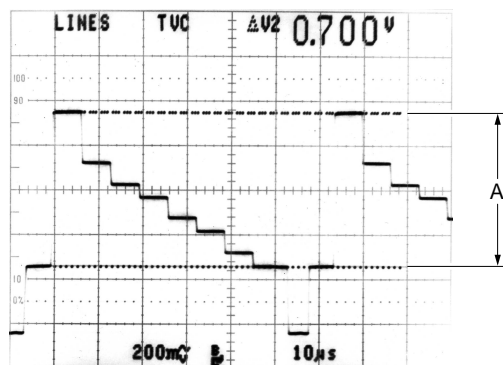
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



7-1-18. Encoder Chroma Level Adjustment

Connection : Connection 3 (PRO 76P DIGITAL)
Input signal : Incorporated COLOR BARS (Turn
OFF R-Y on the camera service menu)

MENU No. : 642

Measuring point : S-VIDEO (C) OUT

VTR MODE : PB

Tape : Blanking tape

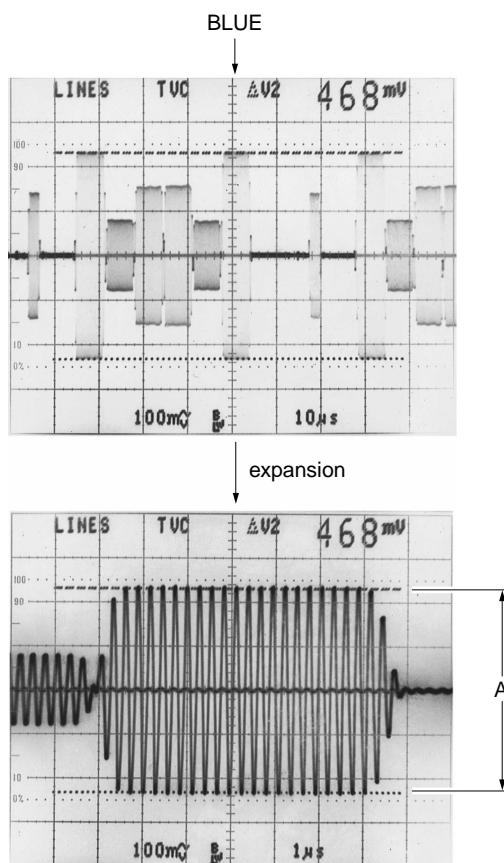
Specification : CHROMA (BLUE) LEVEL
 $A = 468 \pm 5 \text{ mV p-p}$ <DSR-1>
 $A = 459 \pm 5 \text{ mV p-p}$ <DSR-1P>

Adjusting method :

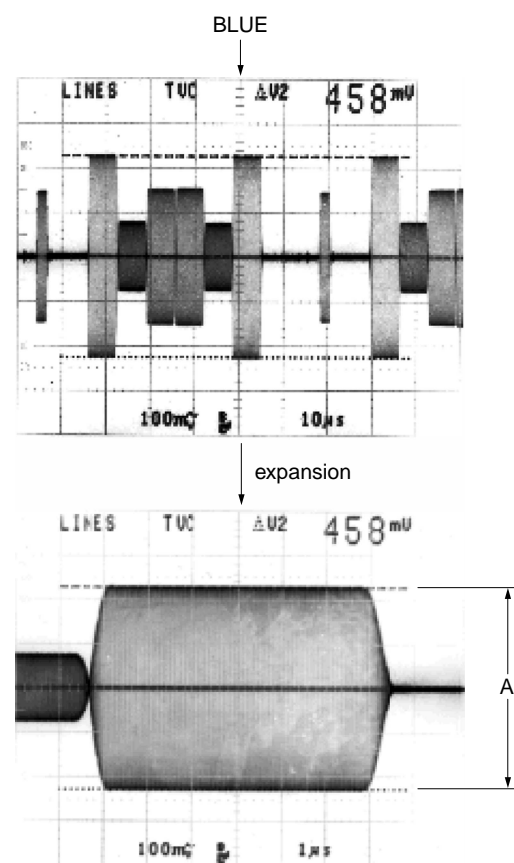
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



7-1-19. D/A R-Y Output Level Adjustment

Connection : Connection 3 (PRO 76P DIGITAL)

Input signal : Incorporated COLOR BARS

MENU No. : 643

Measuring point : S-VIDEO (C) OUT

VTR MODE : PB

Tape : Blanking tape

Specification : CHROMA (RED) LEVEL

A = 678 ± 5 mV p-p <DSR-1>

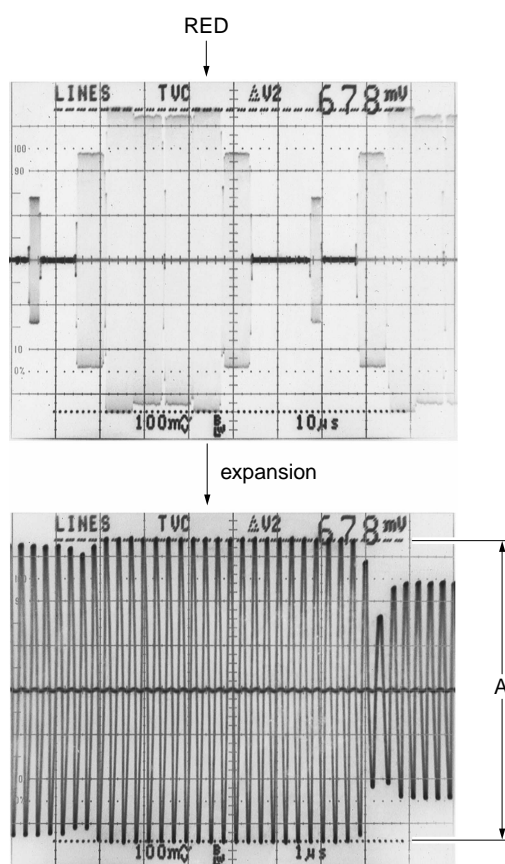
A = 664 ± 5 mV p-p <DSR-1P>

Adjusting method :

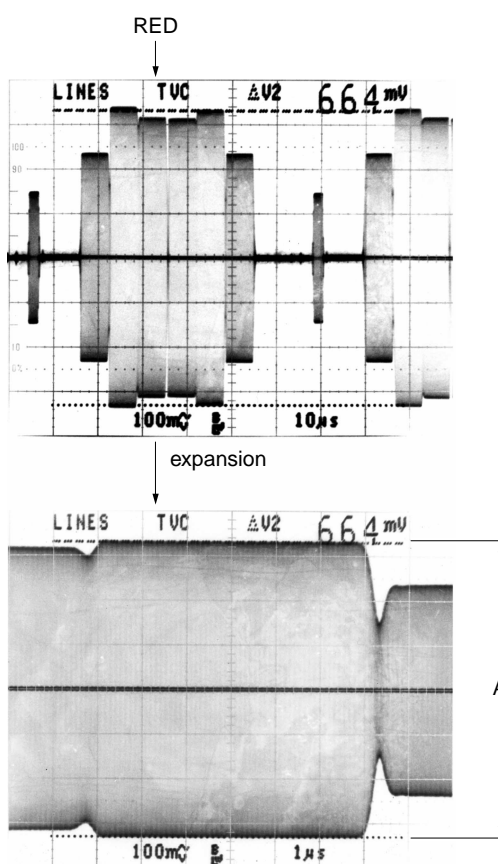
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



7-1-20. Encoder Burst Level Adjustment

Connection : Connection 3 (PRO 76P DIGITAL)

Input signal : Incorporated COLOR BARS

MENU No. : 644

Measuring point : S-VIDEO (C) OUT

VTR MODE : PB

Tape : Blanking tape

Specification : BURST LEVEL

$A = 286 \pm 3 \text{ mV p-p}$ <DSR-1>

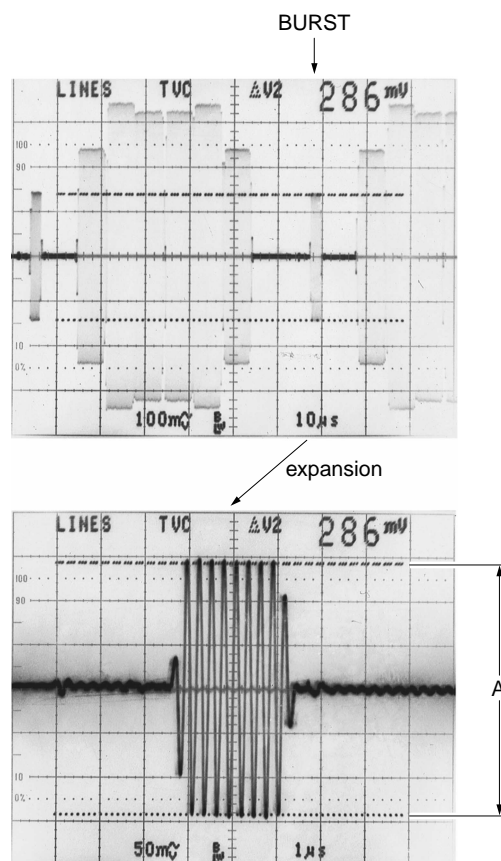
$A = 300 \pm 3 \text{ mV p-p}$ <DSR-1P>

Adjusting method :

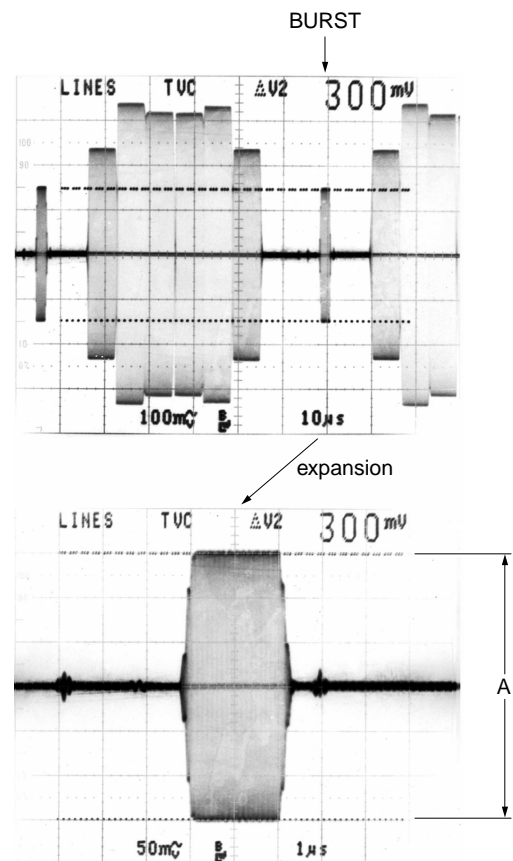
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



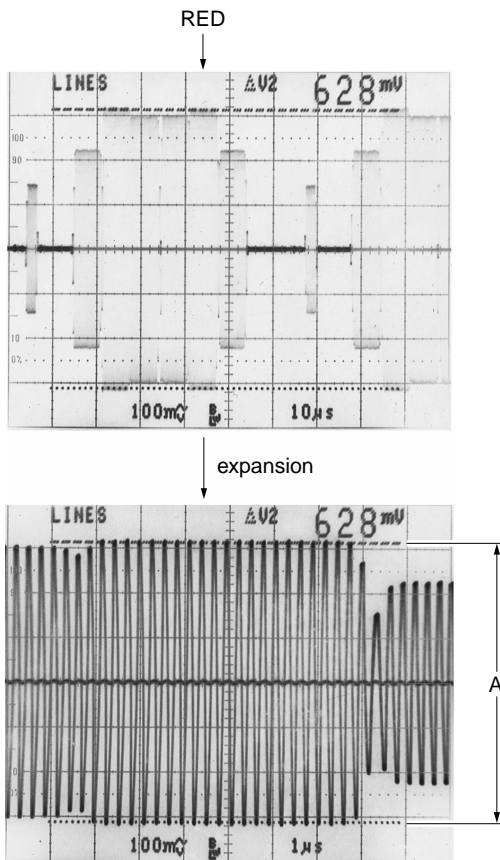
7-1-21. Encoder Chroma Level (Setup Adder on) Adjustment <For DSR-1 only>

Connection : Connection 3 (PRO 76P DIGITAL)
Input signal : Incorporated COLOR BARS
MENU No. : 645
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Blanking tape
Specification : CHROMA (RED) LEVEL
 $A = 627 \pm 5 \text{ mV p-p}$

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.



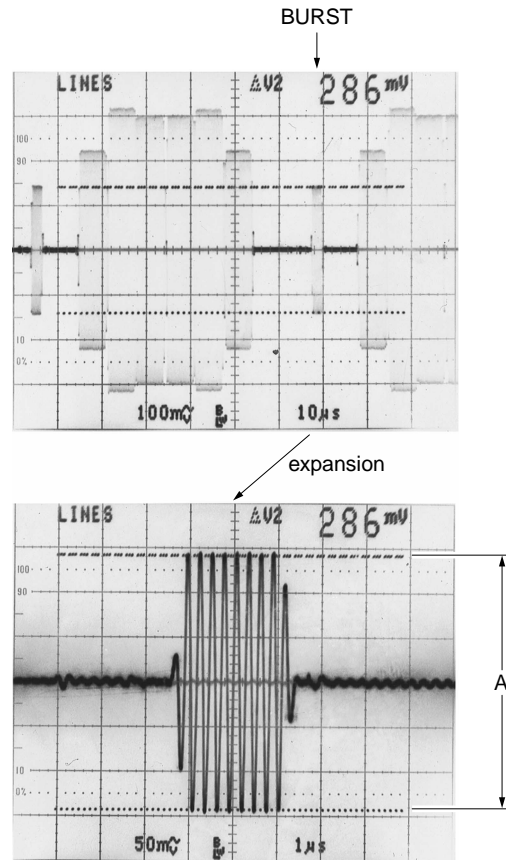
7-1-22. Encoder Burst Level (Setup Adder on) Adjustment <For DSR-1 only>

Connection : Connection 3 (PRO 76P DIGITAL)
Input signal : Incorporated COLOR BARS
MENU No. : 646
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Blanking tape
Specification : BURST LEVEL
 $A = 286 \pm 3 \text{ mV p-p}$

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.



7-1-23. VBS Chroma Mix Level Adjustment

Connection : Connection 3 (PRO 76P DIGITAL)

Input signal : Incorporated COLOR BARS

MENU No. : 647

Measuring point : VIDEO OUT

VTR MODE : PB

Tape : Blanking tape

Specification : CHROMA (RED) LEVEL

$A = 678 \pm 5\text{mV p-p}$ <DSR-1>

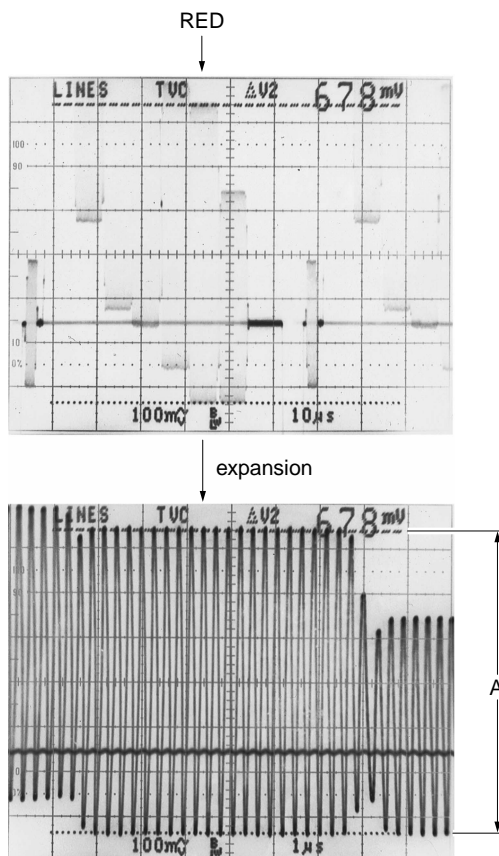
$A = 664 \pm 5\text{mV p-p}$ <DSR-1P>

Adjusting method :

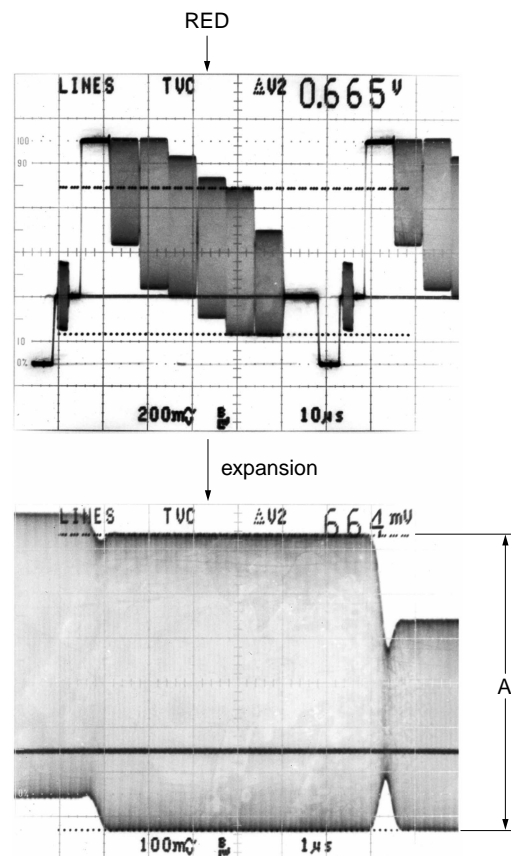
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



7-1-24. VBS Y Mix Level Adjustment

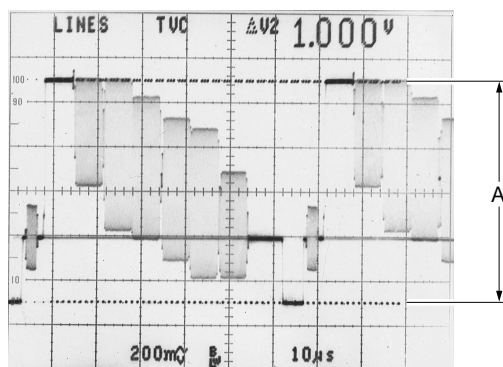
Connection : Connection 3 (PRO 76P DIGITAL)
Input signal : Incorporated COLOR BARS
MENU No. : 648
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Blanking tape
Specification : VIDEO LEVEL
 $A = 1.00 \pm 0.01 \text{ V p-p}$

Adjusting method :

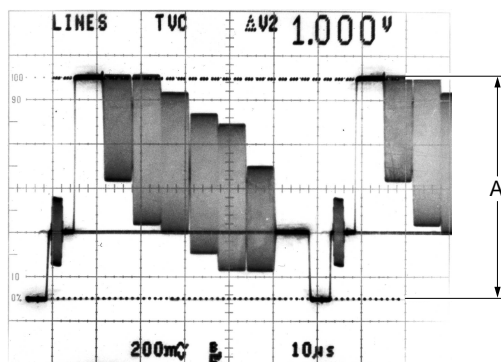
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



7-1-25. A/D Y Clamp Level Adjustment

Connection : Connection 3 (PRO 50P)
Input signal : Incorporated COLOR BARS
MENU No. : 632
Measuring point : None
VTR MODE : EE
Adjusting method :

Press the RESET button after waiting for the two digits on the right of the display window (LCD) to show 0F or 10, and register the data.

7-1-26. A/D Y Input Level Adjustment

Note

Before performing this adjustment, be sure to perform 7-1-25. A/D Y Clamp Level Adjustment.

Connection : Connection 3 (PRO 50P)
Input signal : Incorporated COLOR BARS
MENU No. : 633
Measuring point : None
VTR MODE : EE
Adjusting method :

Press the ADVANCE button or SHIFT button so that the display window (LCD) displays "EA" on the right. Then press the RESET button to register the data.

7-1-27. A/D R-Y Input Level Adjustment <For DSR-1 only>

Connection : Connection 3 (PRO 50P)
Input signal : Incorporated COLOR BARS
MENU No. : 634
Measuring point : None
VTR MODE : EE

Adjusting method :

Press the ADVANCE button or SHIFT button so that the display window (LCD) display “2B” on the right.
 Then press the RESET button to register the data.

7-1-28. A/D B-Y Input Level Adjustment <For DSR-1 only>

Connection : Connection 3 (PRO 50P)
Input signal : Incorporated COLOR BARS
MENU No. : 635
Measuring point : None
VTR MODE : EE

Adjusting method :

Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “2B” on the right.
 Then press the RESET button to register the data.

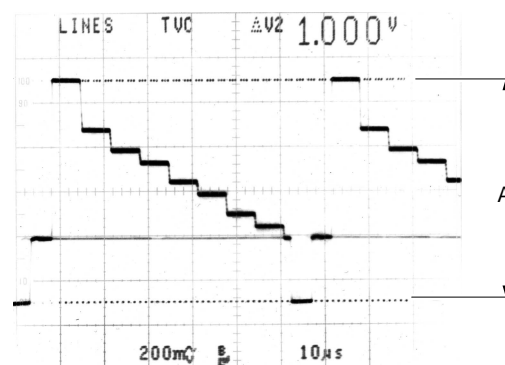
7-1-29. EE Y Level Adjustment

Connection : Connection 3
Input signal : Incorporated COLOR BARS
MENU No. : 638
Measuring point : S-VIDEO (Y) OUT
VTR MODE : EE
Tape : Not required
Specification : VIDEO LEVEL A = 1.00 ± 0.01 V p-p

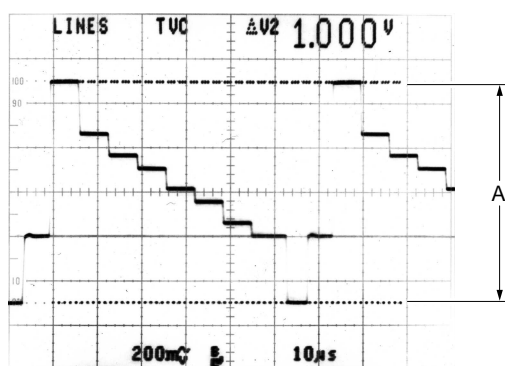
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied.
 Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



7-1-30. EE Chroma Level Adjustment

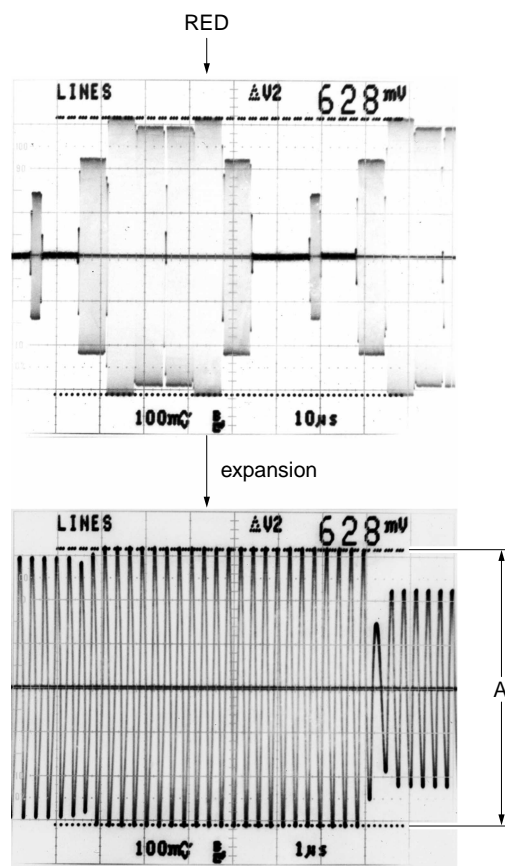
Connection : Connection 3
Input signal : Incorporated COLOR BARS
MENU No. : 639
Measuring point : S-VIDEO (C) OUT
VTR MODE : EE
Tape : Not required
Specification : CHROMA (RED) LEVEL
 <DSR-1>
 A = 627 ± 5 mV p-p <CAMERA : UC>
 A = 678 ± 5 mV p-p <CAMERA : J>
 <DSR-1P>
 A = 664 ± 5 mV p-p

Adjusting method :

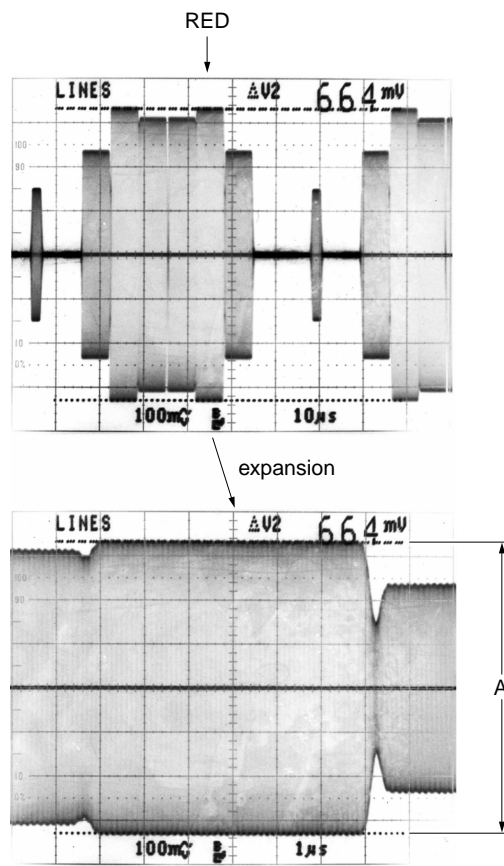
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification, and register the data.

<For DSR-1>



<For DSR-1P>



7-2. IV-50 Board (Assuming that the VA-172/172P/205B/ 205C board has been adjusted.)

Maintenance Menu Settings

1. Press the MENU button while pressing the SHIFT button, and release the SHIFT button while pressing the MENU button. Check that the display window (LCD) displays “600_off” after about 1 second later, and then release the MENU button.
2. Press the RESET button so that the “off” displayed blinks, and press the ADVANCE button to display the “on”.
3. Press the RESET button so that the “600” displayed blinks. This will enable the maintenance menu to be set.
(Hereafter press the ADVANCE button or SHIFT button to change the Menu No. and press the RESET button to set the Menu No.)

Note

Refer to 2-25. Menu for details.

7-2-1. A/D Y Clamp Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 632
Measuring point : None
VTR MODE : EE
Adjusting method :

Press the RESET button after waiting for the two digits on the right of the display window (LCD) to show 0F or 10, and register the data.

7-2-2. A/D Y Input Level Adjustment

Note

Before performing this adjustment, be sure to perform 7-2-1. A/D Y Clamp Level Adjustment.

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 633
Measuring point : None
VTR MODE : EE
Adjusting method :
Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “EA” on the right. Then press the RESET button to register the data.

7-2-3. A/D R-Y Input Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 634
Measuring point : None
VTR MODE : EE
Adjusting method :
Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “2B (DSR-1), 10 (DSR-1P)” on the right. Then press the RESET button to register the data.

7-2-4. A/D B-Y Input Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 635
Measuring point : None
VTR MODE : EE
Adjusting method :
Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “2B (DSR-1), 10 (DSR-1P)” on the right. Then press the RESET button to register the data.

7-2-5. REC Video Phase Adjustment

<For DSR-1>

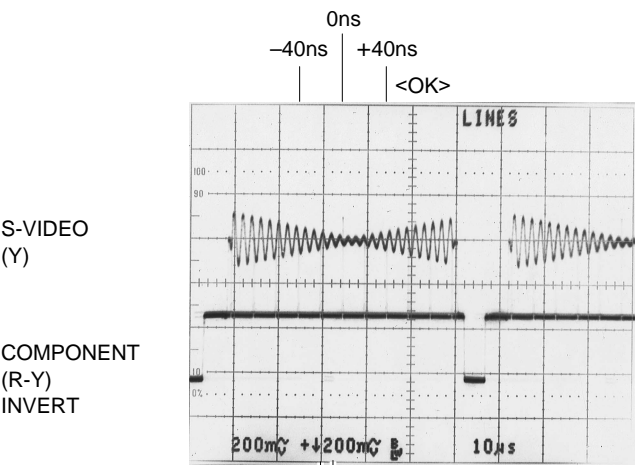
Connection : Connection 1
Input signal : BOWTIE
MENU No. : 636
Measuring point : S-VIDEO (Y) OUT, camera tool input
COMPONENT (R-Y) IN
VTR MODE : EEnPB
Tape : Blanking tape
Specification : Difference on Bowtie dip point
= 0 ±40 ns

Adjusting method :

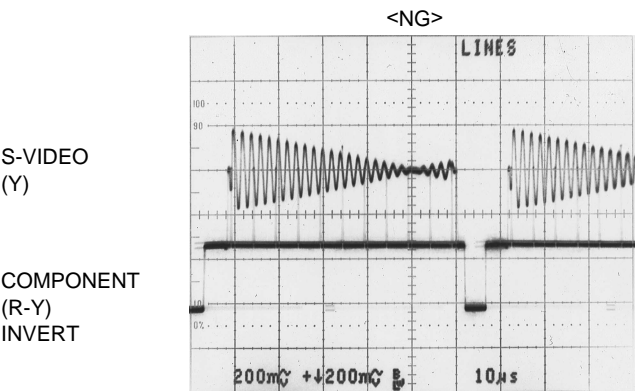
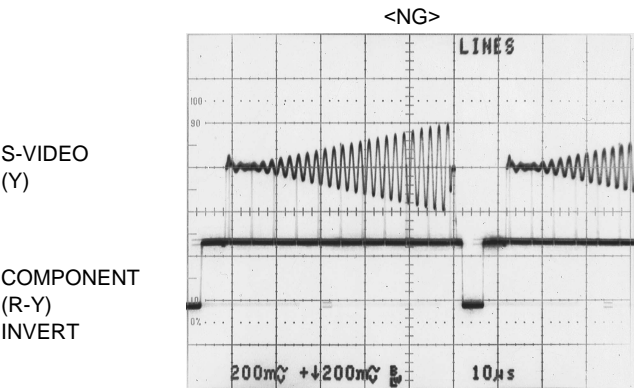
Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification. Press the RESET button after satisfying the specification, and register the data.

* OSCILLOSCOPE

- CH-1 : S-VIDEO (Y)
- CH-2 : COMPONENT (R-Y) <INVERT>
- MODE : ADD



(1 graduation = 20 ns)



<For DSR-1P>

Connection : Connection 1
Input signal : BOWTIE
MENU No. : 636
Measuring point : S-VIDEO (Y) OUT, camera tool input
 COMPONENT (R-Y) IN
VTR MODE : EEnPB
Tape : Blanking tape
Specification : Difference on Bowtie dip point
 $= 0 \pm 40 \text{ ns}$

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification.

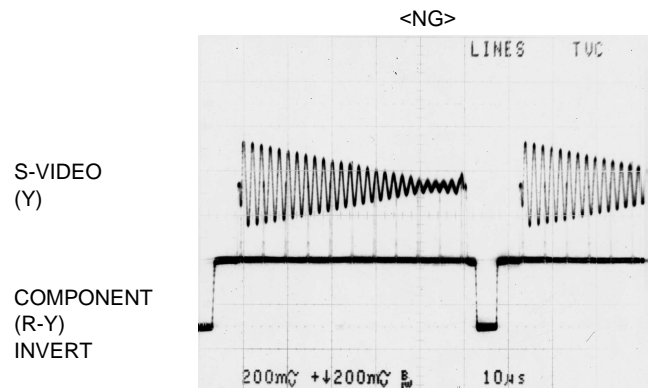
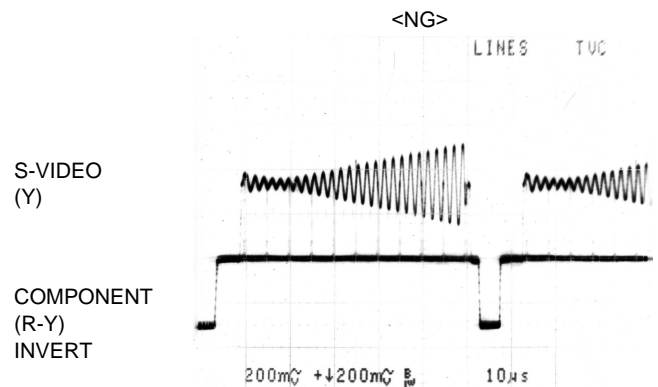
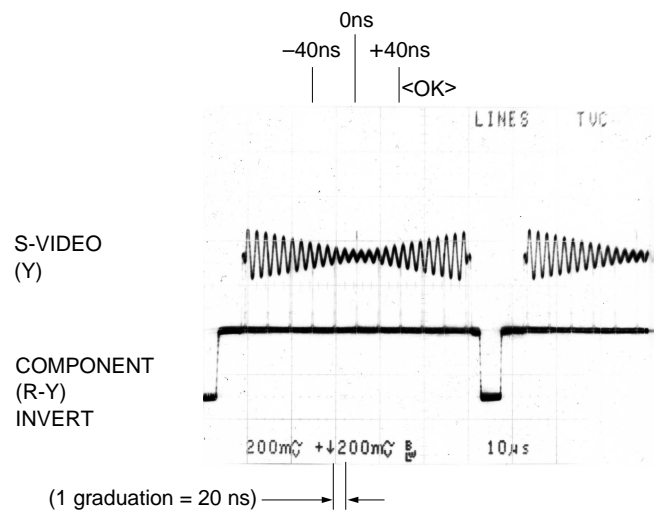
Press the RESET button after satisfying the specification, and register the data.

* OSCILLOSCOPE

CH-1 : S-VIDEO (Y)

CH-2 : COMPONENT (R-Y) <INVERT>

MODE : ADD



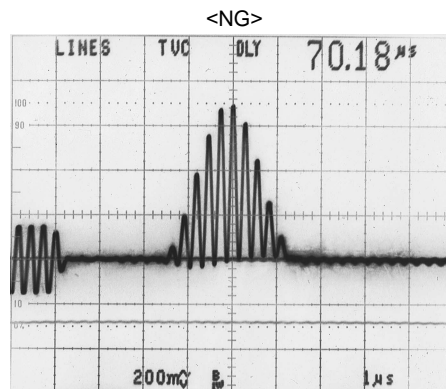
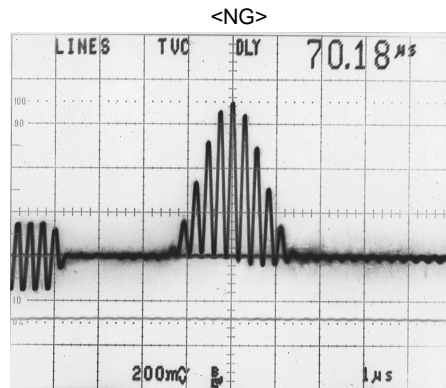
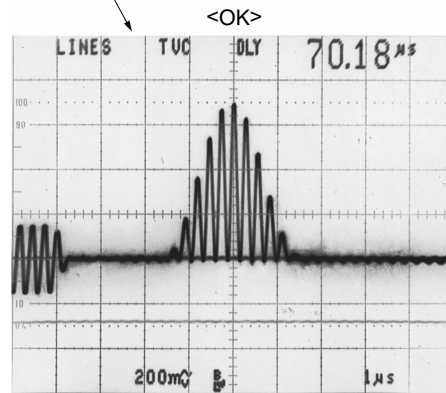
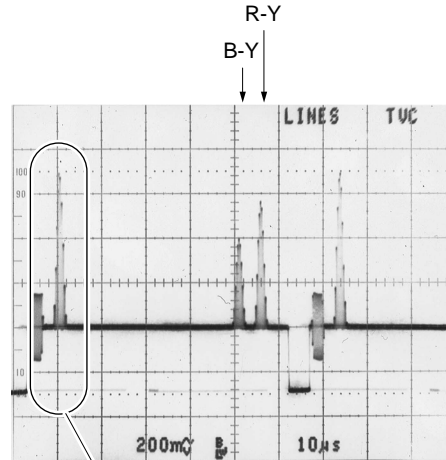
7-2-6. REC Y/C Delay Rough Adjustment

<For DSR-1>

Connection : Connection 1
Input signal : MOD 12.5T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EEnPB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of 12.5T pulse.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification. Press the RESET button after satisfying the specification, and register the data.



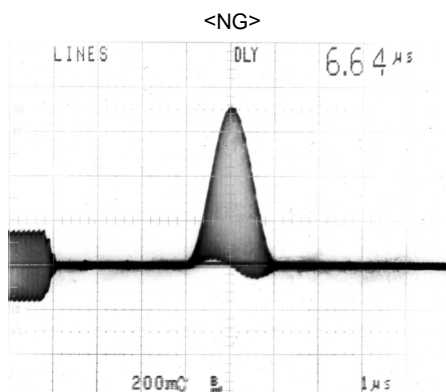
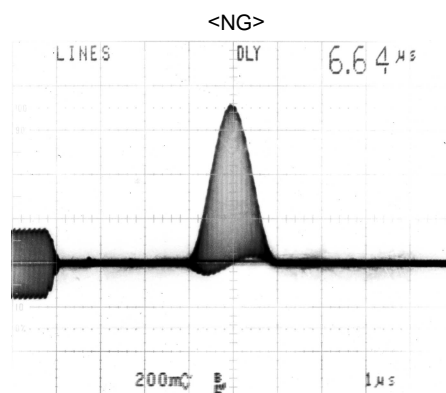
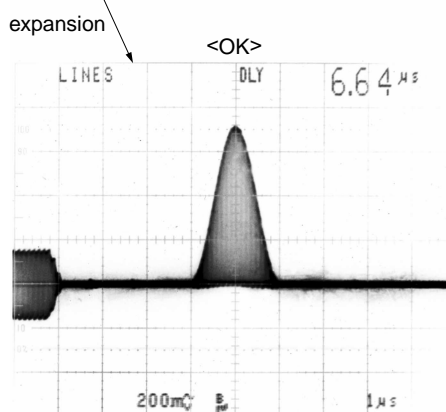
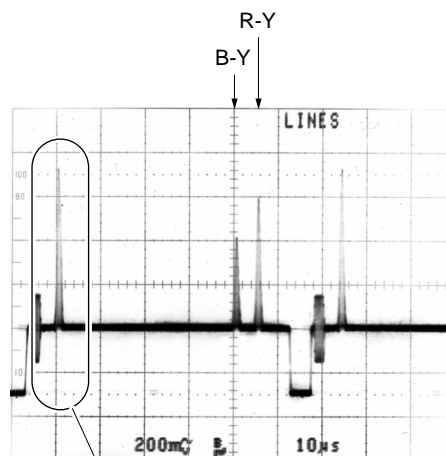
<For DSR-1P>

Connection : Connection 1
Input signal : MOD 10T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EEEnPB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of 10T pulse.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification.

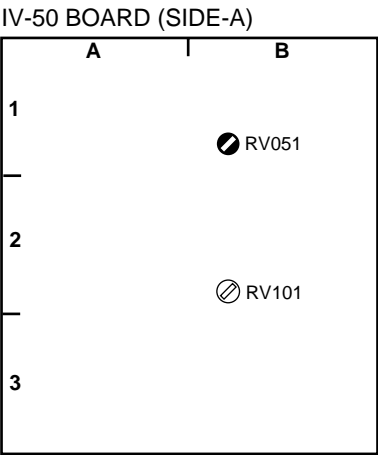
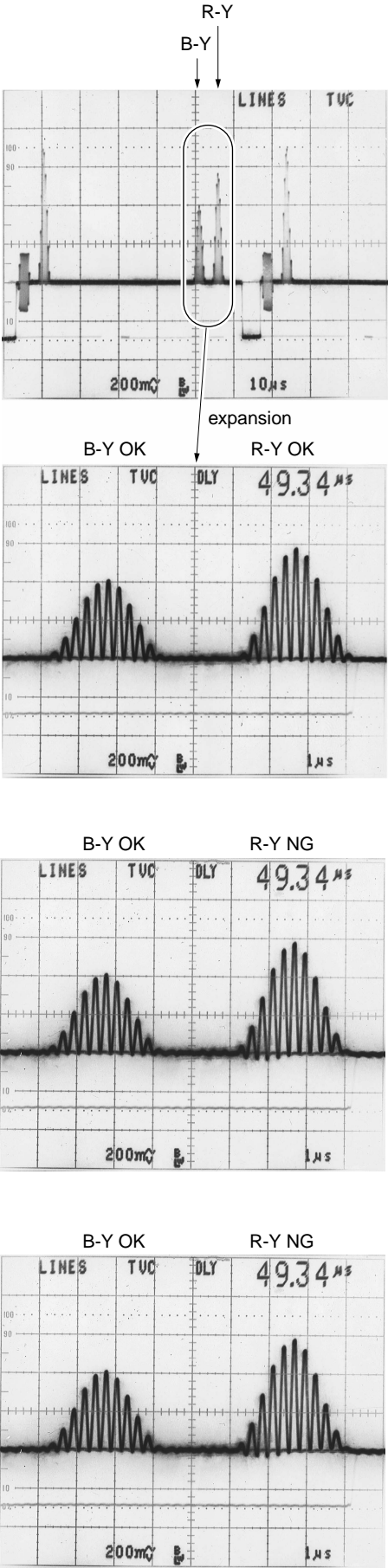
Press the RESET button after satisfying the specification, and register the data.



7-2-7. REC R-Y Y/C Delay Adjustment

<For DSR-1>

- Connection :** Connection 1
Input signal : MOD 12.5T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EEnPB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of R-Y modulation pulse.
Adjusting method :
Set the unit to STOP and PB repeatedly, and adjust
RV051 (B-1) so that the specification is satisfied.

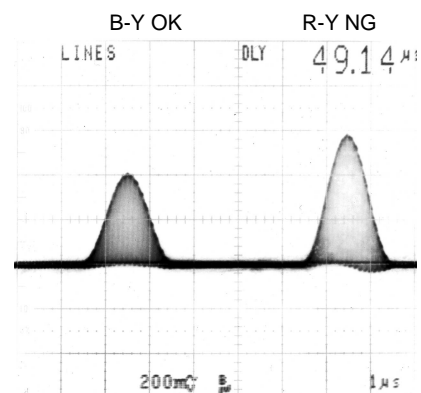
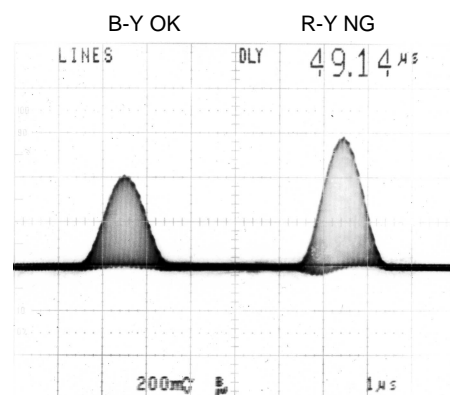
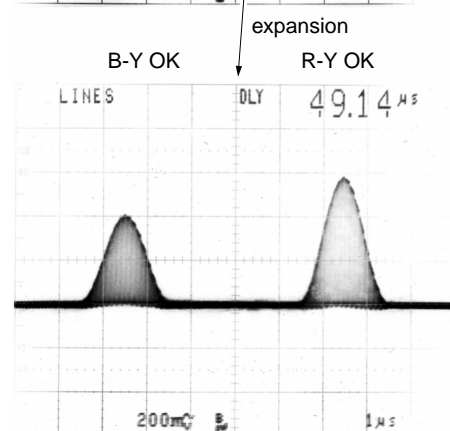
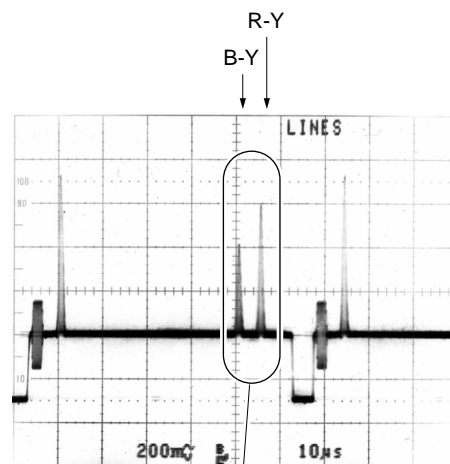


<For DSR-1P>

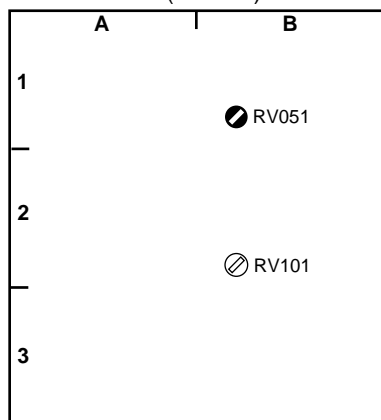
Connection : Connection 1
Input signal : MOD 10T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EEnPB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of R-Y modulation pulse.

Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust
 ⓪RV051 (B-1) so that the specification is satisfied.



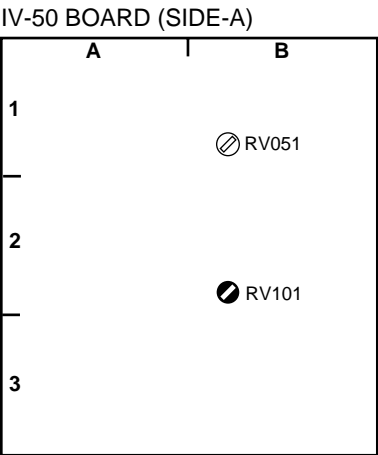
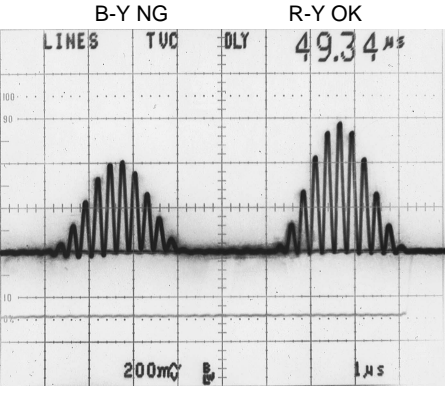
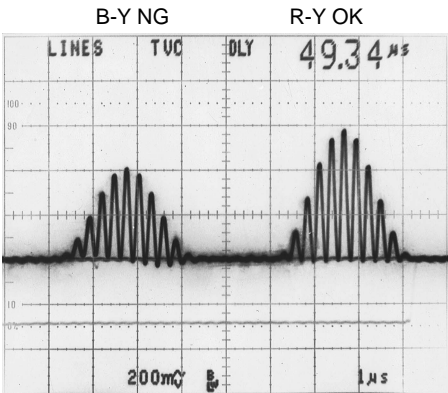
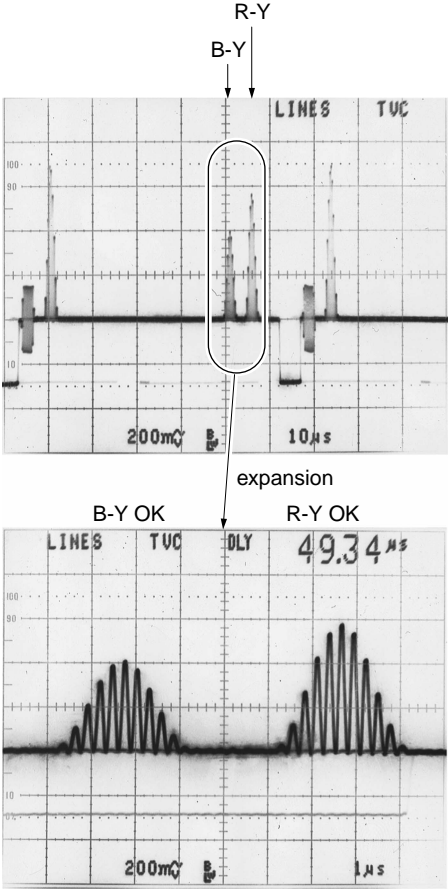
IV-50 BOARD (SIDE-A)



7-2-8. REC B-Y Y/C Delay Adjustment

<For DSR-1>

- Connection :** Connection 1
Input signal : MOD 12.5T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EEnPB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of B-Y modulation pulse.
Adjusting method :
Set the unit to STOP and PB repeatedly, and adjust
RV101 (B-2) so that the specification is satisfied.

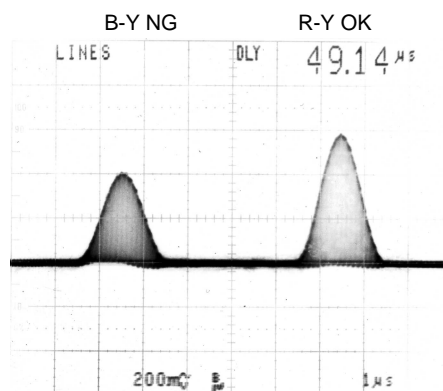
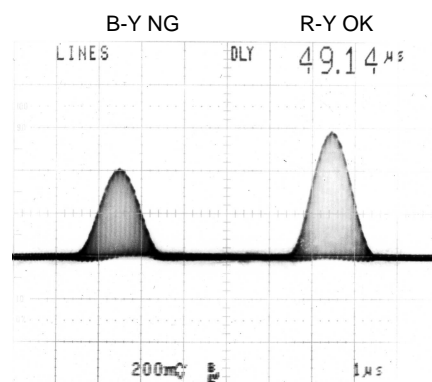
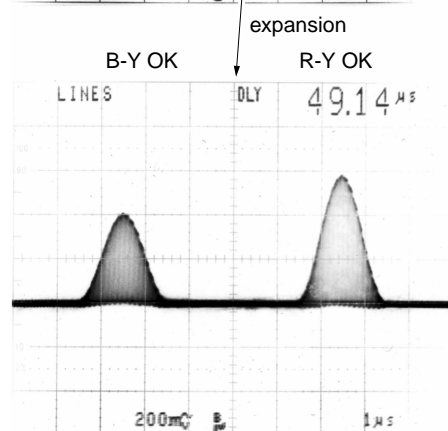
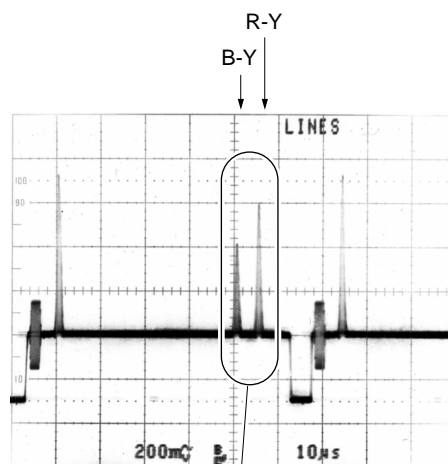


<For DSR-1P>

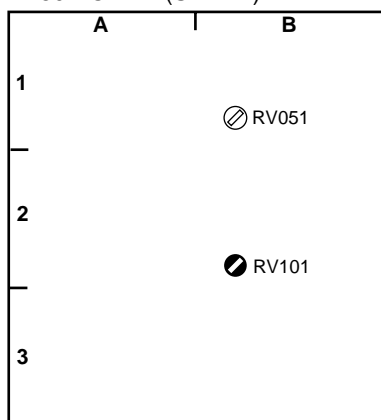
Connection : Connection 1
Input signal : MOD 10T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EEnPB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of B-Y modulation pulse.

Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust
 ⒶRV101 (B-2) so that the specification is satisfied.



IV-50 BOARD (SIDE-A)



7-3. FP-81 Board

Note

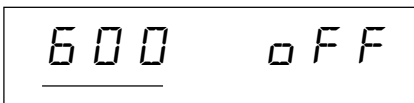
After replacing this board, perform battery detect voltage adjustment (Menu No. 501, 502 and 513) in accordance with 2-20-1. Changing the voltage (1).

7-3-1. KY EEPROM Echo Back Data Preset procedure

Notes

- Because data may be lost when replacing the board and EEPROM, note down following menu No. settings before performing the replacement.
(Menus which should be noted down.)
No.201, 204, 206, 207, 211 to 214, 220, 221, 308, 401, 402, 405, 406, 501 to 503 and 513
(However, the hours meter cannot be reset.)
For details of the menus, refer to 2-25. Menu.
- Be sure to preset this data after replacing the FP-81 board and EEPROM (IC204) on the FP-81 board.

1. Set the maintenance menu, and select Menu No. 752.
(1) Press the MENU button while pressing the SHIFT button, then release the SHIFT button first, and release the MENU button after more than 1 second.
The display window (LCD) will display as follows.
(Characters underlined on the display window (LCD) in the description of operations hereafter indicate that they are blinking.)



- (2) Press the RESET (MENU SET) button once so that "oFF" blinks.
The display window (LCD) will display as follows.



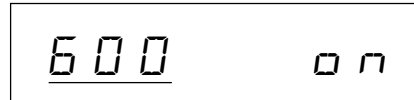
Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

- (3) Press the ADVANCE button once, and select "on".
The display window (LCD) will display as follows.



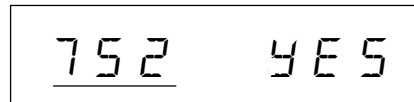
Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

- (4) Press the RESET (MENU SET) button once.
The display window (LCD) will display as follows.



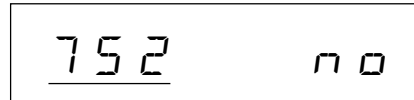
Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

- (5) Press the ADVANCE button several times and display Menu No. 752.
The display window (LCD) will display as follows.

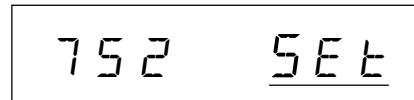


If the display window (LCD) displays as follows, it indicates that the data the last time the power was turned on cannot be used properly. Therefore, press the MENU button to exit the maintenance menu, turn OFF the power and replace the EEPROM (IC204) with that attached to the old board.)

After replacing the EEPROM, perform 2-20. Changing the Battery Before End/Battery End/BP Battery Preset Voltage.)



2. Press the RESET (MENU SET) button.
Check that the display window (LCD) displays as follows.



Each time the ADVANCE button is pressed, "SEt" and "ESC" will blink alternately.

This mode can be canceled by pressing the RESET (MENU SET) button while "ESC" is displayed.

3. Press the RESET (MENU SET) button once.
Check that the display window (LCD) displays as follows.



If “no” is displayed on the display window (LCD), exit Menu No. 752 once, and perform the above procedure again. If the display does not change, check if the peripheral circuits of EEPROM (IC204) of the FP-81 board are abnormal, and replace with the EEPROM attached to the old board.

4. Press the MENU button to exit the maintenance menu.
The display window (LCD) will return to the state before the maintenance menu was displayed.

7-4. HN-227 Board

When replacing this board, remove EEPROM (IC1) from the old board, and mount it onto the new one. Although adjustments need not be carried out after replacing the board (in the case of above procedure is performed), if the EEPROM (IC1) has been replaced, perform initialization using the menu (Refer to 2-26-3. Note on Replacement of EEPROM.), and perform mechanism-related adjustments in the following order. (Refer to each item for details.)

- ① 9-1. Capstan FG DUTY Adjustment
- ② 9-2. Reel FG DUTY Adjustment
- ③ 4-36. Reel Table FWD/REV Rewind Torque Check/Adjustment
- ④ 5-6. Switching Position Adjustment

Note

(ICXX) is shown the reference No. on schematic diagrams.

7-5. RP-91 Board

After replacing this board, only perform Menu No. 704 AUTO EQ adjustment. If the EEPROM (IC770) on the board has been replaced, perform initialization at Menu No. 755 (For details, refer to 2-26-3. Note on Replacement of EEPROM.) and following adjustments.

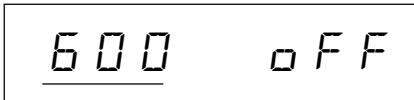
10-2. PLL ADJUSTMENT

10-3. AGC, DELAY ADJUSTMENT

10-4. AUTO EQ ADJUSTMENT

7-5-1. Auto EQ Adjustment

1. Set the maintenance menu, and select Menu No. 704.
 - (1) Press the MENU button while pressing the SHIFT button, then release the SHIFT button first, and release the MENU button after more than 1 second.
The display window (LCD) will display as follows.
(Characters underlined on the display window (LCD) in the description of operations hereafter indicate that they are blinking.)



- (2) Press the RESET (MENU SET) button once so that "oFF" blinks.
The display window (LCD) will display as follows.



Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

- (3) Press the ADVANCE button once, and select "on".
The display window (LCD) will display as follows.



Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

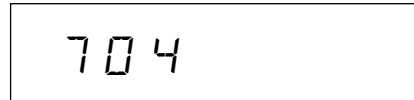
- (4) Press the RESET (MENU SET) button once.
The display window (LCD) will display as follows.



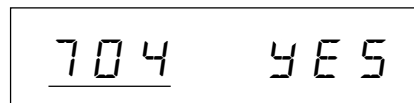
Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

- (5) Press the ADVANCE button several times and display Menu No. 704.

The display window (LCD) will display as follows.

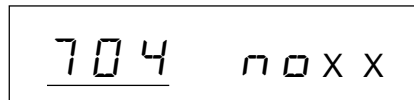


2. Press the RESET (MENU SET) button.
3. Load a blank tape, and wait for some time.
(6 minutes at the most.)
4. Unload the blank tape.
5. Check that the display window (LCD) displays as follows.



If the display window (LCD) displays as follows, exit Menu No. 601 once and start from step 1 again.

If the following is still displayed, check the unit for faults.



XX : 40 → Cannot adjust.

41 → Fault detected when error rate was checked after adjustment.

42 → Could not record time required for adjustment or check.

43 → Could not find starting point of recording.

EE → Cannot save data.

Fb → Operation mode changed during adjustment or check. Or could not record.

Fc → Error occurred during adjustment or check.

Fd → Menu not supported.

FE → Adjustment prohibited. (E.g.:Tape loaded.)

Note

Because the recording in the special mode is performed during adjustments, the tape used in this adjustment cannot be played back properly.

6. Press the MENU button to exit the maintenance menu.
The display window (LCD) will return to the state before the maintenance menu was displayed.

Section 8

System Control Alignment

Equipment Used

- Frequency counter (IWATSU SC-7102 or equivalent)
- DC power supply (SONY AC-500/550 or CMA-8/8A)

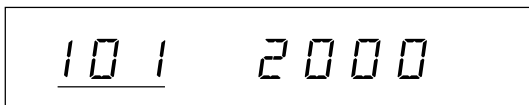
8-1. Clock Frequency Adjustment

Equipment : Frequency Counter

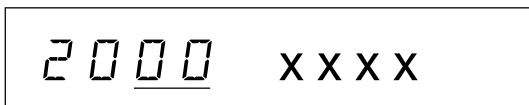
Preparation : • Input Singal (No signal)
• EE mode

Adjustment procedure:

1. Press the MENU button once.
The display will show the following.
(In the following description, an underscore indicates a portion of the display which is blinking.)

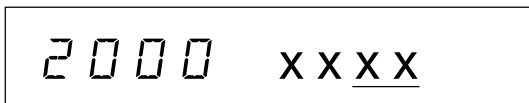


2. Press the SHIFT button once.
The display will show the following.

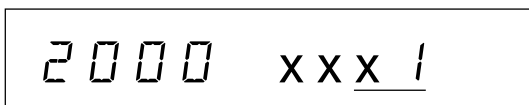


3. Confirm that figure 1 is displayed on the right side.
When the figure 1 is not displayed, set it to 1 by following the procedure described below.

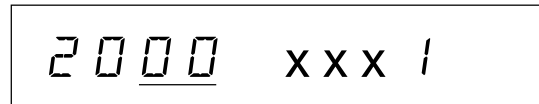
- ① Press the SHIFT button to let the following portion flash.



- ② Press the ADVANCE button to set figure 1 is displayed on the right side.

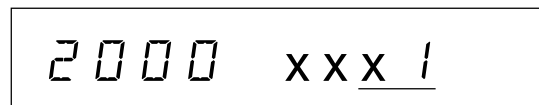


- ① Press the SHIFT button seven times.
The display will show the following.



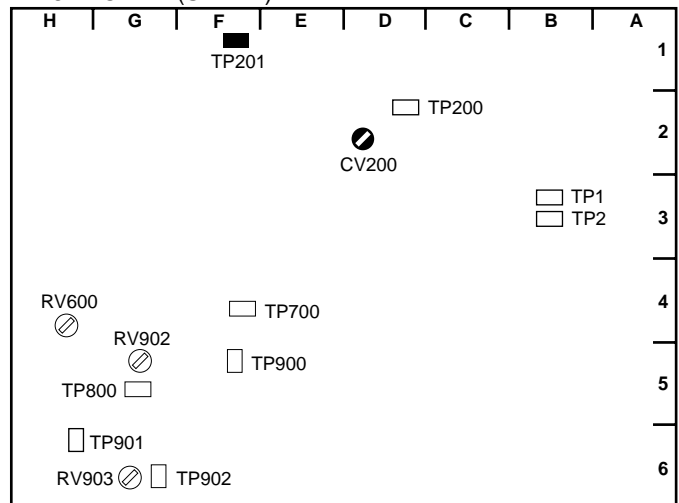
Note

The following portion must not flash.



4. Adjust the specification is satisfied.
Test point : TP201/FP-81 Board (F-1)
Adjusting point : CV200/FP-81 Board (D-2)
Specification : 256.0025 ± 0.0005 Hz
5. Press the MENU button, and exit the maintenance menu.

FP-81 BOARD (SIDE-B)



Section 9

Servo System Alignment

Equipment Required

DC power supply (SONY AC-500/550 or CMA-8/8A)

9-1. Capstan FG Duty Adjustment

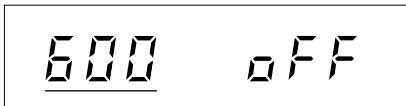
Adjustment Procedure

1. Check that there is no tape in the unit.
2. Close the cassette compartment when it is opened. (It is not necessary to reinstall the cassette compartment if it is removed.)
3. Set the unit in maintenance menu, and select Menu No. 601.

- (1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.

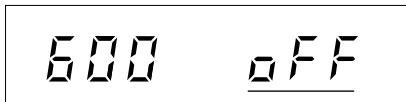
The following message is displayed on the LCD screen.

(In the following description, an underlined part indicates a portion of the display which is blinking.)



- (2) Press the RESET (MENU SET) button once to blink "oFF."

The following message is displayed on the LCD screen.



Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

- (3) Press the ADVANCE button once to select "on."
- The following message is displayed on the LCD screen.



Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

- (4) Press the RESET (MENU SET) button once.
- The following message is displayed on the LCD screen.



Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

- (5) Press the ADVANCE button once to display Menu No. 601.



The following message is displayed on the LCD screen.

Each time the ADVANCE button is pressed, the Menu Nos. are changed as follows:

600 → 601 → 603 → ... 513 → 600 → ...

Each time the SHIFT button is pressed, the Menu Nos. are changed as follows:

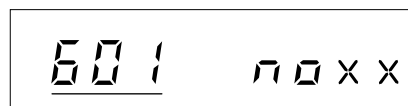
600 → 513 → ... 601 → 600 → 513 → ...

4. Press the RESET (MENU SET) button.
5. Check that the capstan is rotating, and wait for a while (Up to 60 seconds).
6. Check that the following message is displayed on the LCD screen.



When the following message is displayed on the LCD screen, exit from Menu No. 601, and perform after step 3 again.

If the following message is still shown on the LCD screen, check whether the unit is normal or not.



X X: no → The capstan does not rotate
 I I → The capstan FG (A) cannot be adjusted
 I 2 → The capstan FG (B) cannot be adjusted
 E 0 → Cannot save data
 F d → Not supported menu
 F E → Prohibits adjustments (Ex.: Tape loaded)

7. Press the MENU button, and exit from the maintenance menu.
- The state before the maintenance menu indication will be displayed on the LCD screen.

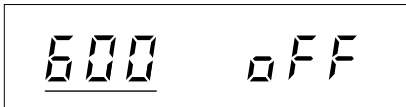
9-2. Reel FG Duty Adjustment

Adjustment Procedure

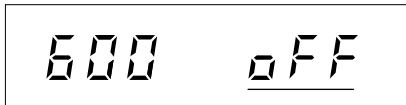
1. Check that there is no tape in the unit.
2. Close the cassette compartment when it is opened. (It is not necessary to reinstall the cassette compartment if it is removed.)
3. Set the unit in maintenance menu, and select Menu No. 607.

- (1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.
The following message is displayed on the LCD screen.

(In the following description, an underlined part indicates a portion of the display which is blinking.)



- (2) Press the RESET (MENU SET) button once to blink "oFF."
The following message is displayed on the LCD screen.



Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

- (3) Press the ADVANCE button once to select "on."
The following message is displayed on the LCD screen.



Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

- (4) Press the RESET (MENU SET) button once.
The following message is displayed on the LCD screen.



Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

- (5) Press the ADVANCE button several times to display Menu No. 607.

The following message is displayed on the LCD screen.



Each time the ADVANCE button is pressed, the Menu Nos. are changed as follows.

600 → 601 → 603 → ... 513 → 600 → ...

Each time the SHIFT button is pressed, the Menu Nos. are changed as follows.

600 → 513 → ... 601 → 600 → 513 → ...

4. Press the RESET (MENU SET) button.
5. Check that the reel motor is rotating, and wait for a while (Up to 60 seconds).
6. Check that the following message is displayed on the LCD screen.



When the following message is displayed on the LCD screen, exit from Menu No. 607, and perform after step 3 again.

If the following message is still shown on the LCD screen, check whether the unit is normal or not.



- XX**: 20 → The reel motor does not rotate
21 → The reel FG cannot be adjusted
E0 → Cannot save data
Fd → Not supported menu
FE → Prohibits adjustments (Ex.: Tape loaded)

7. Press the MENU button, and exit from the maintenance menu.

The state before the maintenance menu indication will be displayed on the LCD screen.

Section 10

RF System Alignment

10-1. REC Current Adjustment

Note

Be sure to perform this adjustment when the RP-91 board is repaired and recording amplifier (IC777) or EEPROM (IC770) on the board is replaced.

Be sure not to perform this adjustment when replacing the RP-91 board.

1. Set the unit in maintenance menu, and select Menu No. 700.

- (1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.

The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)



- (2) Press the RESET (MENU SET) button once to blink "oFF".

The following message is displayed on the LCD screen.



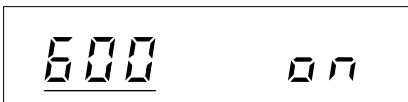
Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

- (3) Press the ADVANCE button once to select "on."
- The following message is displayed on the LCD screen.



Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

- (4) Press the RESET (MENU SET) button once.
- The following message is displayed on the LCD screen.



Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

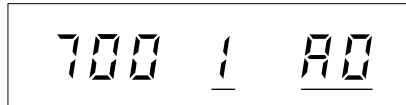
- (5) Press the ADVANCE button several times to display Menu No. 700.

The following message is displayed on the LCD screen.



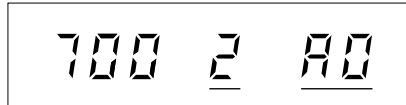
2. Press the RESET (MENU SET) button.

 3. Check that the following message is displayed on the LCD screen:



4. Press the RESET (MENU SET) button.

 5. Check that the following message is displayed on the LCD screen:



6. Press the RESET (MENU SET) button.

 7. Check that the following message is displayed on the LCD screen:



If the following message is displayed on the LCD screen, exit from Menu No. 700, and perform from step 1 again.

If the following message is still shown on the LCD screen, check whether the unit is normal or not.



X X : E0 → Cannot save data

8. Press the MENU button, and exit from the maintenance menu.
- The state before the maintenance menu indication will be displayed on the LCD screen.

10-2. PLL Adjustment

Note

Be sure to perform this adjustment when the RP-91 board is repaired and PLL (IC773) or EEPROM (IC770) on the RP-91 board is replaced.

Be sure not to perform this adjustment when replacing the RP-91 board.

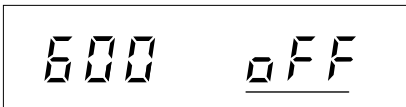
1. Set the unit in the maintenance menu, and select Menu No. 701.

- (1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.
The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)



- (2) Press the RESET (MENU SET) button once to blink "oFF."

The following message is displayed on the LCD screen.



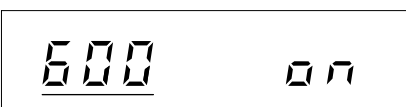
Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

- (3) Press the ADVANCE button once to select "on."
The following message is displayed on the LCD screen.



Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

- (4) Press the RESET (MENU SET) button once.
The following message is displayed on the LCD screen.



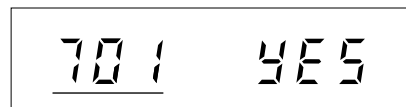
Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

- (5) Press the ADVANCE button several times to display Menu No. 701.

The following message is displayed on the LCD screen.

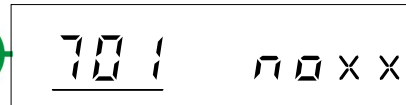


2. Press the RESET (MENU SET) button.
3. Load a blank tape, and wait for a while (8 minutes or less).
4. Eject the blank tape.
5. Check that the following message is displayed on the LCD screen:



If the following message is displayed on the LCD screen, exit from Menu No. 701 and perform from step 1 again.

If the following message is still shown on the LCD screen, check the replaced IC and/or adjacent circuitry.

XX : 42 → Could not record time required for adjustment or check

43 → Could not find starting point of recording

45 → CLOCK DELAY cannot be adjusted

50 → PLL F0 (CH1) cannot be adjusted

51 → PLL F0 (CH2) cannot be adjusted

52 → PLL capture range cannot be adjusted

ED → Cannot save data

Fb → Operation mode changed during adjustment or check. Or could not record

Fc → Error occurred during adjustment or check

Fd → Not supported menu

FE → Prohibits adjustments (Ex.: Tape loaded)

Note

Because the recording in the special mode is performed during adjustments, the tape used in this adjustment cannot be played back properly.

6. Press the MENU button, and exit from the maintenance menu.

The state before the maintenance menu indication will be displayed on the LCD screen.

10-3. AGC and Delay Adjustment

Note

Be sure to perform this adjustment when the RP-91 board is repaired and AEQ (IC775) or EEPROM (IC770) on the RP-91 board is replaced.

Be sure not to perform this adjustment when replacing the RP-91 board.

1. Set the unit in maintenance menu, and select Menu No. 702.

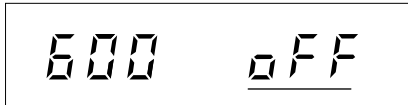
- (1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.

The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)



- (2) Press the RESET (MENU SET) button once to blink "oFF".

The following message is displayed on the LCD screen.



Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will be blink alternately.

- (3) Press the ADVANCE button once to select "on."

The following message is displayed on the LCD screen.



Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

- (4) Press the RESET (MENU SET) button once.

The following message is displayed on the LCD screen.



Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

- (5) Press the ADVANCE button several times to display Menu No. 702.

The following message is displayed on the LCD screen.



2. Press the RESET (MENU SET) button.
3. Load a blank tape, and wait for a while (10 minutes or less).
4. Eject the blank tape.
5. Check that the following message is displayed on the LCD screen:



If the following message is displayed on the LCD screen, exit from Menu No. 702 and perform from step 1 again.

If the following message is still shown on the LCD screen, check the replaced IC and/or adjacent circuitry.



- XX : 40 → EQ cannot be adjusted
 41 → Fault detected when error rate was checked after adjustment
 42 → Could not record time required for adjustment or check
 43 → Could not find starting point of recording
 44 → AGC LEVEL cannot be adjusted
 45 → CLOCK DELAY cannot be adjusted
 E0 → Cannot save data
 Fb → Operation mode changed during adjustment or check. Or could not record
 Fc → Error occurred during adjustment or check
 Fd → Not supported menu
 FE → Prohibits adjustments (Ex.: Tape loaded)

Note

Because the recording in the special mode is performed during adjustments, the tape used in this adjustment cannot be played back properly.

6. Press the MENU button, and exit from the maintenance menu.

The state before the maintenance menu indication will be displayed on the LCD screen.

10-4. AUTO EQ Adjustment

1. Set the unit in maintenance menu, and select Menu No. 704.

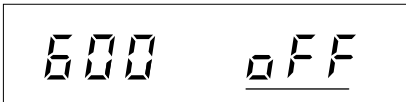
- (1) While pressing the SHIFT button, press the MENU button, then release the SHIFT button, and press the MENU button for more than one second.

The following message is displayed on the LCD screen.
(In the following description, an underlined part indicates a portion of the display which is blinking.)



- (2) Press the RESET (MENU SET) button once to blink "oFF".

The following message is displayed on the LCD screen.



Each time the RESET (MENU SET) button is pressed, "600" and "oFF" will blink alternately.

- (3) Press the ADVANCE button once to select "on."
The following message is displayed on the LCD screen.



Each time the ADVANCE button is pressed, "on" and "oFF" will blink alternately.

- (4) Press the RESET (MENU SET) button once.
The following message is displayed on the LCD screen.

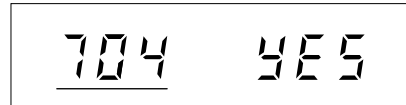


Each time the RESET (MENU SET) button is pressed, "600" and "on" will blink alternately.

- (5) Press the ADVANCE button several time to display Menu No. 704 on the LCD screen.
The following message is displayed on the LCD screen.

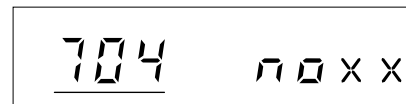


2. Press the RESET (MENU SET) button.
3. Load a blank tape, and wait for a while (6 minutes or less).
4. Eject the blank tape.
5. Check that the following message is displayed on the LCD screen:



If the following message is displayed on the LCD screen, exit from Menu No. 704 and perform from step 1 again.

If the following message is still shown on the LDC screen, check whether the unit is normal or not.



X X : 40 → EQ cannot be adjusted

41 → Fault detected when error rate was checked after adjustment

42 → Could not record time required for adjustment or check

43 → Could not find starting point of recording.

E0 → Cannot save data

Fb → Operation mode changed during adjustment or check. Or could not record

Fc → Error occurred during adjustment or check.

Fd → Not supported menu

FE → Prohibits adjustments (Ex.: Tape loaded)

Note

Because the recording in the special mode is performed during adjustments, the tape used in this adjustment cannot be played back properly.

6. Press the MENU button, and exit from the maintenance menu.

The state before the maintenance menu indication will be displayed on the LCD screen.

Section 11

Audio System Alignment

Equipment Required

- Audio signal generator (HEWLETT PACKARD HP8904 or equivalent)
- Audio level meter (HEWLETT PACKARD HP3400A or equivalent)
- DC power supply (SONY AC-500/550 or CMA-8/8A)
- Blank tape (SONY DVM30-ME, DVM30-NME or equivalent)
- Alignment tape XH5-1A (SONY Part No. 8-967-999-21: for DSR-300A)
- Alignment tape XH5-1AP (SONY Part No. 8-967-999-25: for DSR-300AP)

Alignment Tape Contents

XH5-1A (SONY Part No. 8-967-999-21: for DSR-1)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO	
Black burst	23 : 59 : 00	60	No signal	
75 % full color bars	00 : 00	60	1 kHz	
60 % multi burst	01 : 00	60	20 Hz	
Bowtie with mod 12.5T	02 : 00	30	14.5 kHz	
Shallow ramp	02 : 30	30	10 kHz	
	03 : 00	30	No signal	
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS	
Line 17	04 : 00	40	1 ch	1 kHz
75 % full color bars	04 : 40	40	2 ch	
Quad phase	05 : 20	40	3 ch	
	06 : 00	40	4 ch	
Black burst	06 : 40	5	No signal	
	06 : 45	5		
60 % multi burst (for composite)	06 : 50	60	1 kHz	
Mod 12.5T	07 : 50	30	20 Hz	
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz	
	08 : 50	30	10 kHz	
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS	
Chroma noise	09 : 50	30	1 kHz	
Line 17	10 : 20	30		
75 % full color bars	10 : 50	180		
60 % multi burst	13 : 50	60		
Mod 12.5T	14 : 50	30		
Shallow ramp	15 : 20	60		
75 % full color bars	16 : 20	100		
75 % full color bars (R-Y OFF)	18 : 00	180		
75 % full color bars (B-Y OFF)	21 : 00	180		
Blanking marker	24 : 00	180		
Line 17 (R-Y OFF)	27 : 00	180		
Line 17 (B-Y OFF)	30 : 00	180		

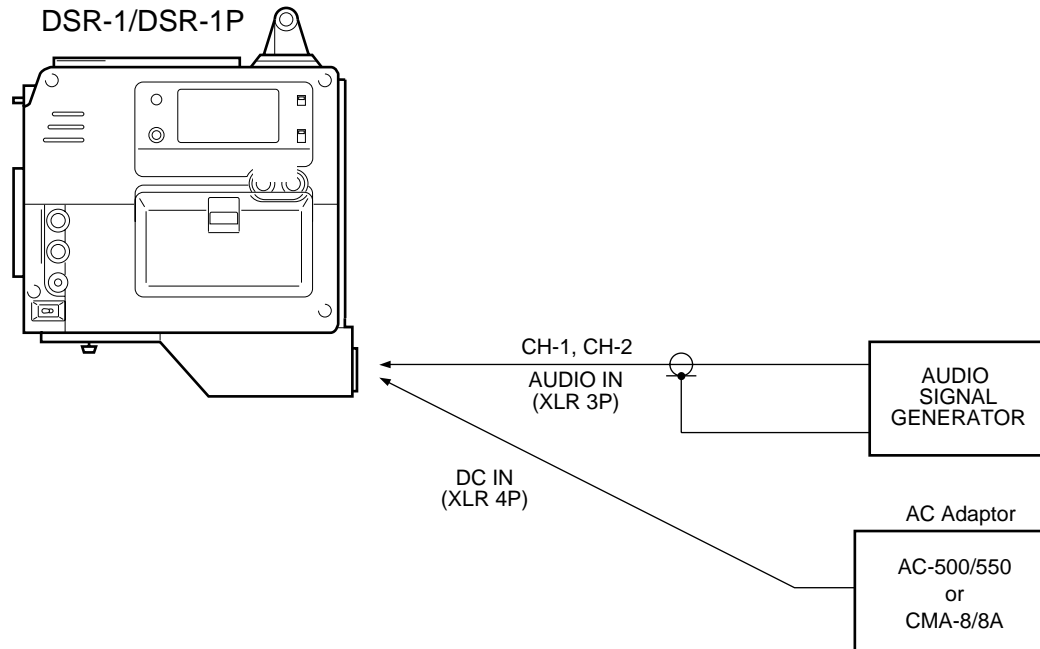
* Audio levels are -20 dBFS (Reference), except 1 kHz 0 dBFS part.

XH5-1AP (Sony Part No. 8-967-999-25: for DSR-1P)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO	
Black burst	23 : 59 : 00	60	No signal	
100 % full color bars	00 : 00	60	1 kHz	
60 % multi burst	01 : 00	60	20 Hz	
Bowtie with mod 10T	02 : 00	30	14.5 kHz	
Shallow ramp	02 : 30	30	10 kHz	
	03 : 00	30	No signal	
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS	
Line 17	04 : 00	40	1 ch	1 kHz
100 % full color bars	04 : 40	40	2 ch	
Quad phase	05 : 20	40	3 ch	
	06 : 00	40	4 ch	
Black burst	06 : 40	5	No signal	
	06 : 45	5		
60 % multi burst (for composite)	06 : 50	60	1 kHz	
Mod 10T	07 : 50	30	20 Hz	
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz	
	08 : 50	30	10 kHz	
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS	
Chroma noise	09 : 50	30	1 kHz	
Line 17	10 : 20	30		
100 % full color bars	10 : 50	180		
60 % multi burst	13 : 50	60		
Mod 10T	14 : 50	30		
Shallow ramp	15 : 20	60		
100 % full color bars	16 : 20	100		
100 % full color bars (R-Y OFF)	18 : 00	180		
100 % full color bars (B-Y OFF)	21 : 00	180		
Blanking marker	24 : 00	180		
Line 17 (R-Y OFF)	27 : 00	180		
Line 17 (B-Y OFF)	30 : 00	180		

* Audio levels are –18 dBFS (Reference), except 1 kHz 0 dBFS part.

Connection of Equipment



Pre-Adjustment Switch Settings

• R panel

AUDIO IN switch CH-1 (S700/FP-81) : REAR
 AUDIO IN switch CH-2 (S800/FP-81) : REAR
 MONITOR SELECT switch (S900/FP-81) : MIX
 AUDIO SELECT switch CH-1 (S702/FP-81) : MANUAL
 AUDIO SELECT switch CH-2 (S802/FP-81) : MANUAL
 ALARM VR (RV901/FP-81) : Fully in clockwise direction

MONITOR VR (RV900/FP-81) : Fully in counterclockwise direction

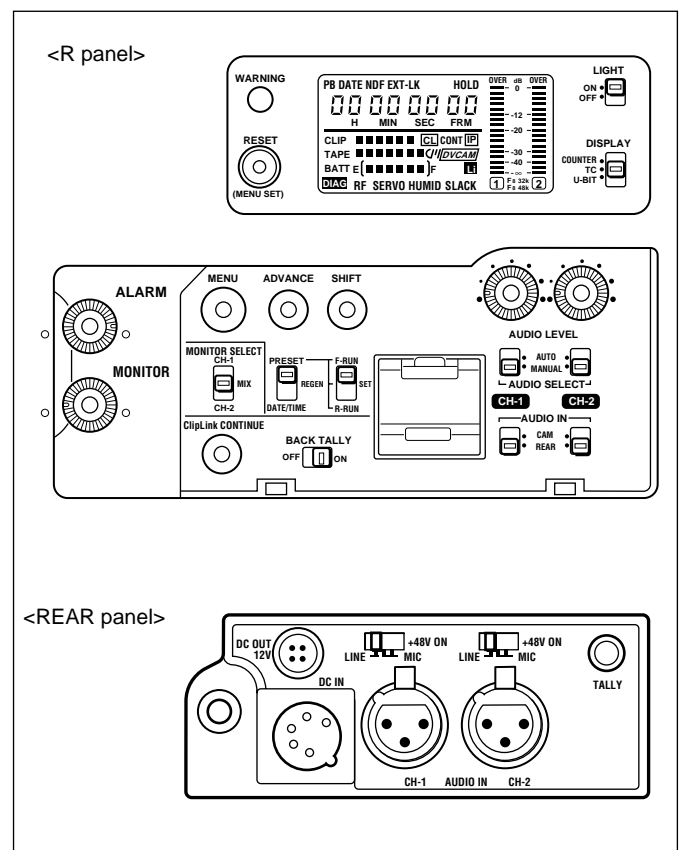
LIGHT (S203/FP-81) : ON
 DISPLAY switch (S200/FP-81) : TC
 TC mode switch 2 (S006/FP-81) : F-RUN
 TC mode switch 1 (S007/FP-81) : PRESET
 BACK TALLY switch (S005/FP-81) : ON

• REAR panel

+48 V CH-1 (S101/CP-283) : LINE
 +48 V CH-2 (S102/CP-283) : LINE

Note

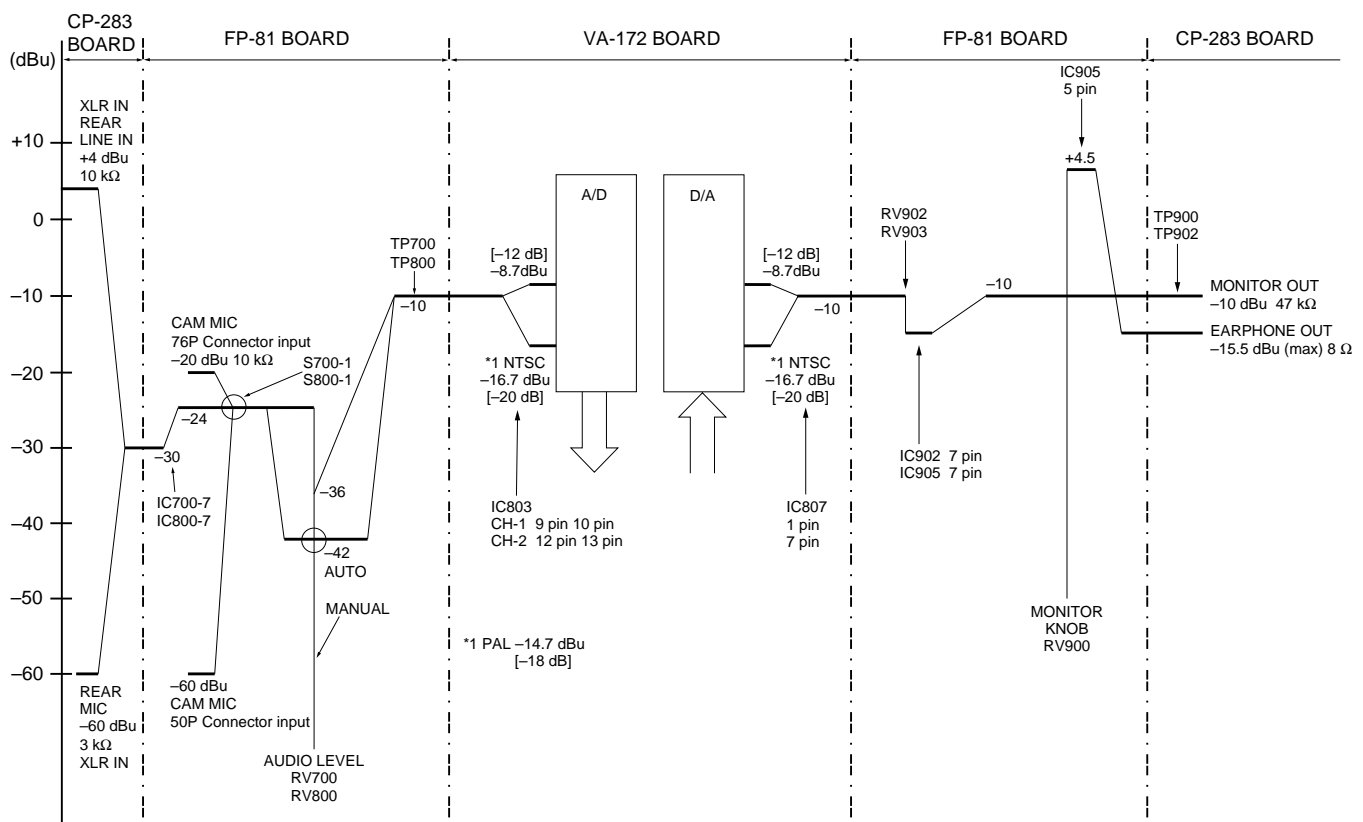
Do not move the above switches and knobs, unless specified otherwise for each adjustment.



Precautions for Adjustments

- Blank tape means a cassette tape which no video/audio signals are recorded.
- When playing back the alignment tape, specification should be corrected according to the correction value indicated on the tape label.
- The alignment tape is used within the limits about 50 times. It is recommended that it be marked for reference.
- 0 dBu = 0.775 Vrms

Level Diagram



11-1. Audio Level Volume Reference Position Adjustment

Equipment : Audio level meter
Audio signal generator

Preparations :

- AUDIO INPUT CH-1/CH-2 : 1 kHz, +4.0 dBu
- EE mode

Test point : TP700/FP-81 board (F-4) <CH-1>
TP800/FP-81 board (G-5) <CH-2>

Adjusting point :

CH-1 AUDIO LEVEL adjustment knob
(RV700/FP-81 board <CH-1>)
CH-2 AUDIO LEVEL adjustment knob
(RV800/FP-81 board <CH-2>)

Specification : -10.3 ± 0.2 dBu

Adjusting method:

Adjust so that the specification is satisfied.

11-2. Monitor Output (LINE OUT) Level Adjustment

Equipment : Audio level meter
Audio signal generator

Preparations :

- AUDIO INPUT CH-1/CH-2 : 1 kHz, +4.0 dBu
- Terminate the monitor output TP900/FP-81 board (CH-1), TP902/FP-81 board (CH-2) at 47 k Ω .
- EE mode

Test point : TP900/FP-81 board (F-5) <CH-1>
TP902/FP-81 board (G-6) <CH-2>

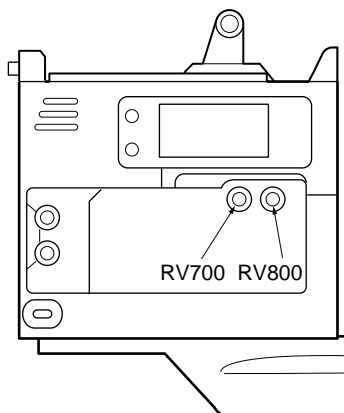
Adjusting point :

RV902/FP-81 board (G-5) <CH-1>
RV903/FP-81 board (G-6) <CH-2>

Specification : -10.0 ± 0.5 dBu

Adjusting method:

Adjust so that the specification is satisfied.



11-3. Limiter Level Adjustment

Equipment : Audio level meter
Audio signal generator

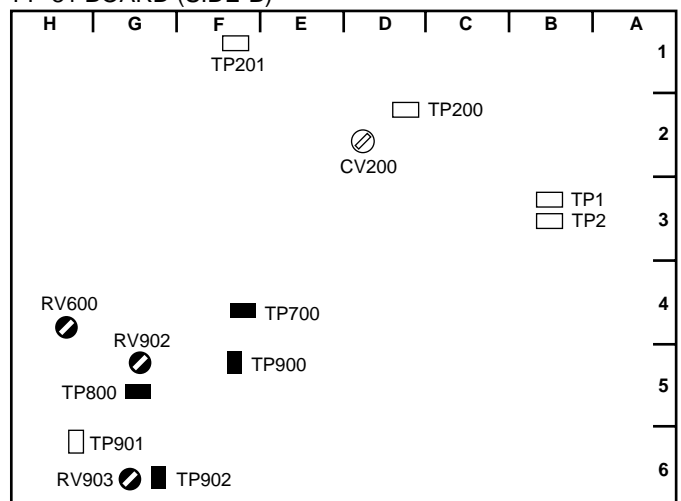
Preparations :

- AUDIO SELECT SW CH-1 : AUTO
- AUDIO SELECT SW CH-2 : AUTO
- <REAR PANEL> CH-1 : LINE or MIC
- <REAR PANEL> CH-2 : LINE or MIC
- EE mode

Adjusting procedure :

1. Input the +20 dB up signal (for reference signal) to AUDIO INPUT CH-1/CH-2.
LINE : 1 kHz, +24 dBu
(Reference signal ; 1 kHz, +4 dBu)
MIC : 1 kHz, -40 dBu
(Reference signal ; 1 kHz, -60 dBu)
2. Adjust so that the specification is satisfied.
Test point : TP700/FP-81 board (F-4)
Adjusting point : RV600/FP-81 board (H-4)
Specification : -8.3 ± 0.2 dBu

FP-81 BOARD (SIDE-B)



Section 12

Video System Alignment

Equipment Required

- Oscilloscope (Tektronix 2445B/200 MHz or equivalent)
- Component signal generator (Tektronix TSG300A or equivalent)
- Frequency counter (Iwatsu SC-7102 or equivalent)
- Camera tool EW-783 (SONY Part No. J-6337-830-A)
- DC power supply (SONY AC-500/550 or CMA-8/8A)
- Blanking tape (SONY PDVM-40ME or equivalent)
- Alignment tape XH5-1A (SONY Part No. 8-967-999-21 : for DSR-1)
- Alignment tape HX5-1AP (SONY Part No. 8-967-999-25 : for DSR-1P)
- S-BNC video cable (SONY Part No. J-6381-380-A)
- DJ-174 extension board (SONY Part No. J-6441-740-A)

Alignment Tape Contents

XH5-1A (SONY Part No. 8-967-999-21 : for DSR-1)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO	
Black burst	23 : 59 : 00	60	No signal	
75 % full color bars	00 : 00	60	1 kHz	
60 % multi burst	01 : 00	60	20 Hz	
Bowtie with mod 12.5T	02 : 00	30	14.5 kHz	
Shallow ramp	02 : 30	30	10 kHz	
	03 : 00	30	No signal	
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS	
Line 17	04 : 00	40	1 ch	1 kHz
75 % full color bars	04 : 40	40	2 ch	
Quad phase	05 : 20	40	3 ch	
	06 : 00	40	4 ch	
Black burst	06 : 40	5	No signal	
	06 : 45	5		
60 % multi burst (for composite)	06 : 50	60	1 kHz	
Mod 12.5T	07 : 50	30	20 Hz	
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz	
	08 : 50	30	10 kHz	
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS	
Chroma noise	09 : 50	30	1 kHz	
Line 17	10 : 20	30		
75 % full color bars	10 : 50	180		
60 % multi burst	13 : 50	60		
Mod 12.5T	14 : 50	30		
Shallow ramp	15 : 20	60		
75 % full color bars	16 : 20	100		
75 % full color bars (R-Y OFF)	18 : 00	180		
75 % full color bars (B-Y OFF)	21 : 00	180		
Blanking marker	24 : 00	180		
Line 17 (R-Y OFF)	27 : 00	180		
Line 17 (B-Y OFF)	30 : 00	180		

* Audio levels are -20 dBFS (Reference), except 1 kHz 0 dBFS part.

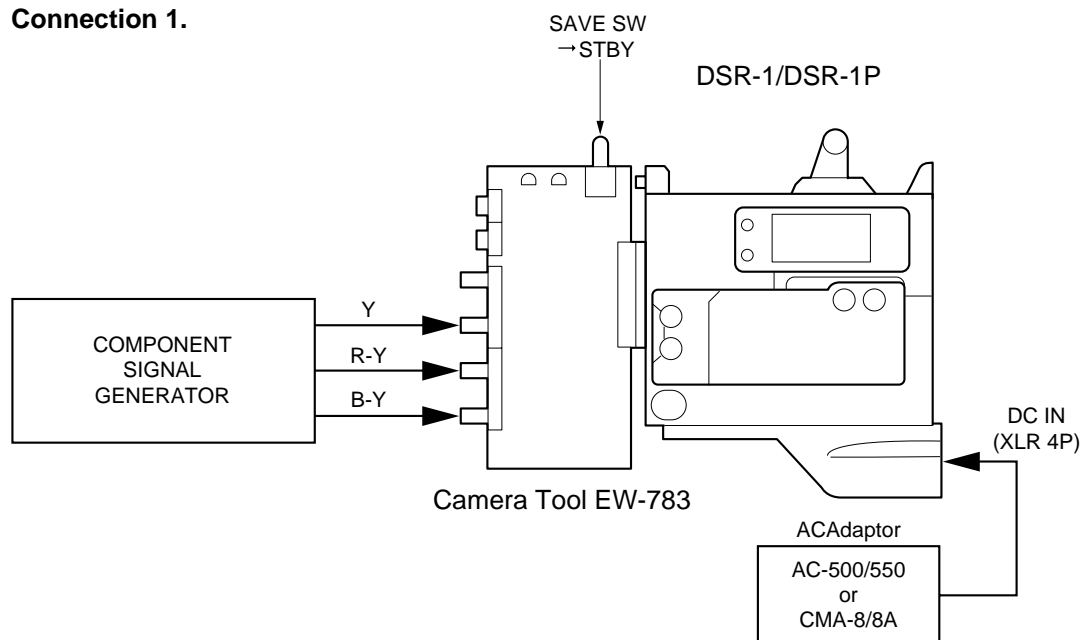
XH5-1AP (Sony Part No. 8-967-999-25: for DSR-1P)

VIDEO	TIME CODE (h) (m) (s)	REC (sec.)	AUDIO	
Black burst	23 : 59 : 00	60	No signal	
100 % full color bars	00 : 00	60	1 kHz	
60 % multi burst	01 : 00	60	20 Hz	
Bowtie with mod 10T	02 : 00	30	14.5 kHz	
Shallow ramp	02 : 30	30	10 kHz	
	03 : 00	30	No signal	
Cross hatch (index)	03 : 30	30	1 kHz 0 dBFS	
Line 17	04 : 00	40	1 ch	1 kHz
100 % full color bars	04 : 40	40	2 ch	
Quad phase	05 : 20	40	3 ch	
	06 : 00	40	4 ch	
Black burst	06 : 40	5	No signal	
	06 : 45	5		
60 % multi burst (for composite)	06 : 50	60	1 kHz	
Mod 10T	07 : 50	30	20 Hz	
Shallow ramp (B-Y/R-Y OFF)	08 : 20	30	20 kHz	
	08 : 50	30	10 kHz	
Cross hatch (index)	09 : 20	30	1 kHz 0 dBFS	
Chroma noise	09 : 50	30	1 kHz	
Line 17	10 : 20	30		
100 % full color bars	10 : 50	180		
60 % multi burst	13 : 50	60		
Mod 10T	14 : 50	30		
Shallow ramp	15 : 20	60		
100 % full color bars	16 : 20	100		
100 % full color bars (R-Y OFF)	18 : 00	180		
100 % full color bars (B-Y OFF)	21 : 00	180		
Blanking marker	24 : 00	180		
Line 17 (R-Y OFF)	27 : 00	180		
Line 17 (B-Y OFF)	30 : 00	180		

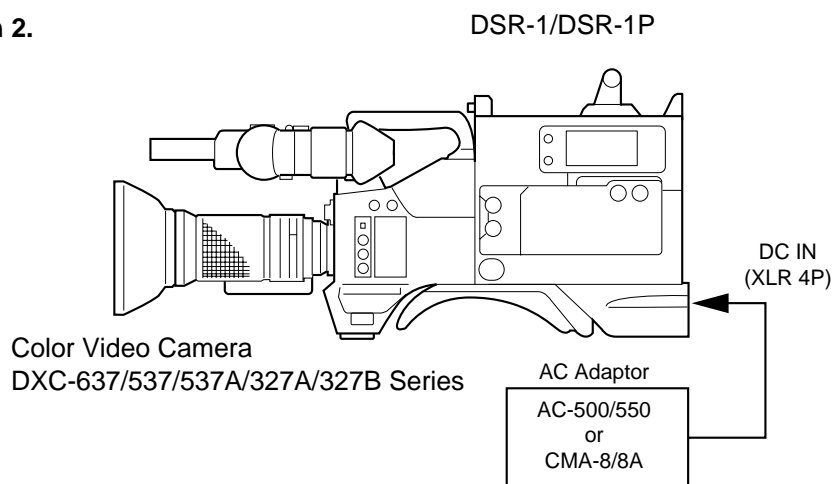
* Audio levels are -18 dBFS (Reference), except 1 kHz 0 dBFS part.

Connection of Equipment

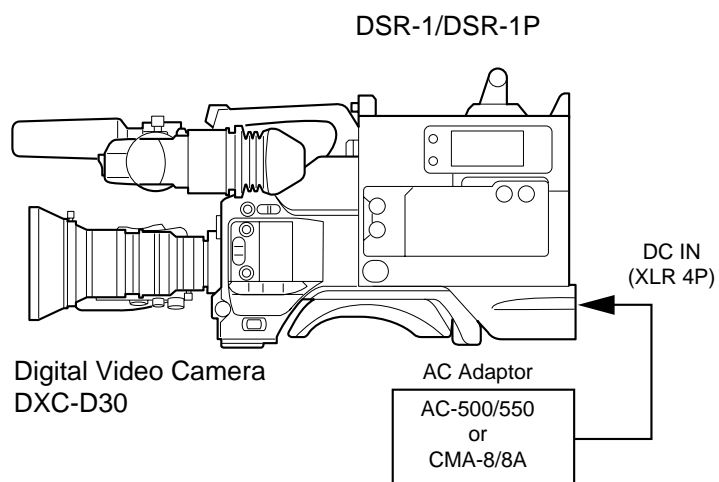
Connection 1.



Connection 2.



Connection 3.



Pre-Adjustment Switch Settings

• R panel

AUDIO IN switch CH-1 (S700/FP-81) : REAR
 AUDIO IN switch CH-2 (S800/FP-81) : REAR
 MONITOR SELECT switch (S900/FP-81) : MIX
 AUDIO SELECT switch CH-1 (S702/FP-81) : MANUAL
 AUDIO SELECT switch CH-2 (S802/FP-81) : MANUAL
 ALARM VR (RV901/FP-81) : Fully in

MONITOR VR (RV900/FP-81) : Fully in
 direction
 counterclockwise direction

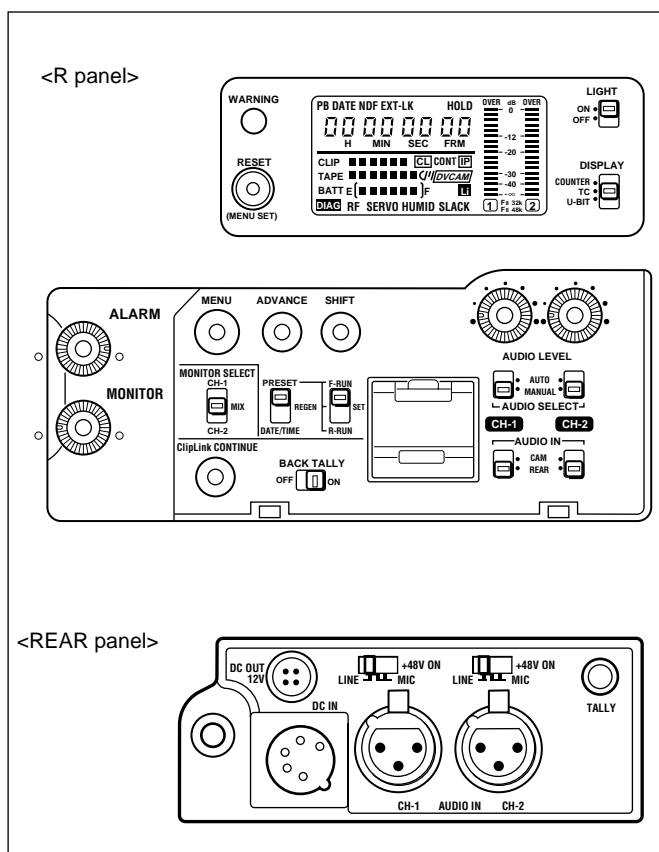
LIGHT (S203/FP-81) : ON
 DISPLAY switch (S200/FP-81) : TC
 TC mode switch 2 (S006/FP-81) : F-RUN
 TC mode switch 1 (S007/FP-81) : PRESET
 BACK TALLY switch (S005/FP-81) : ON

• REAR panel

+48 V CH-1 (S101/CP-283) : LINE
 +48 V CH-2 (S102/CP-283) : LINE

Note

Unless specified otherwise for each adjustment, do not move the above switches and knobs.



Precautions for Adjustments

- Blanking tape means a cassette tape which has been totally erased and can be recorded.
- The alignment tape can roughly be used for 50 times. It is recommended that it be marked for reference.
- Terminate at 75 Ω when measuring S-VIDEO OUT and VIDEO OUT.
- If the RV (potentiometer) or CT (trimmer capacitor) have been rotated or replaced, perform the adjustments shown in 12-1. VA-172/172P/205B/205C Board Reference Signal and Delay Adjustment.

① For VA-172/172P/205B/205C Board RV452

Perform in the following order.

- 12-1-3. PB SYNC Phase Adjustment
- 12-1-4. PB B-Y Y/C Delay Adjustment
- 12-1-5. PB R-Y Y/C Delay Adjustment

② For VA-172/172P/205B/205C Board RV221, RV222

Perform in the following order.

- 12-1-4. PB B-Y Y/C Delay Adjustment
- 12-1-5. PB R-Y Y/C Delay Adjustment

③ For IV-50 Board RV051, RV101

Perform in the following order.

- 12-2-1. Y/C Delay Coarse Adjustment
- 12-2-2. R-Y Y/C Delay Adjustment
- 12-2-3. B-Y Y/C Delay Adjustment

- 12-3. Video Signal Adjustment can be performed using the digital video camera DXC-D30/D30P. Refer to (2) Using Digital Camera DXC-D30/D30P in Section 7 Adjustments after Board Replacements.
- It is recommended that the camera tool EW-783 and analog component camera DXC-637/637P or equivalents described in this chapter be used for video signal adjustments.

12-1. Reference Signal and Delay Adjustments of VA-172/172P/205B/205C Board

12-1-1. 13.5 MHz Frequency Adjustment (CT202)

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS with SET UP
 <DSR-1P>
MENU No. : None
Measuring point : TP401/VA-172/172P/205B/205C (C-1)
VTR MODE : EE
Tape : None
Specification : 1.5 ± 0.1 V dc
Adjusting method :
 Adjust \odot CT202 (C-2) so that the specification is satisfied.

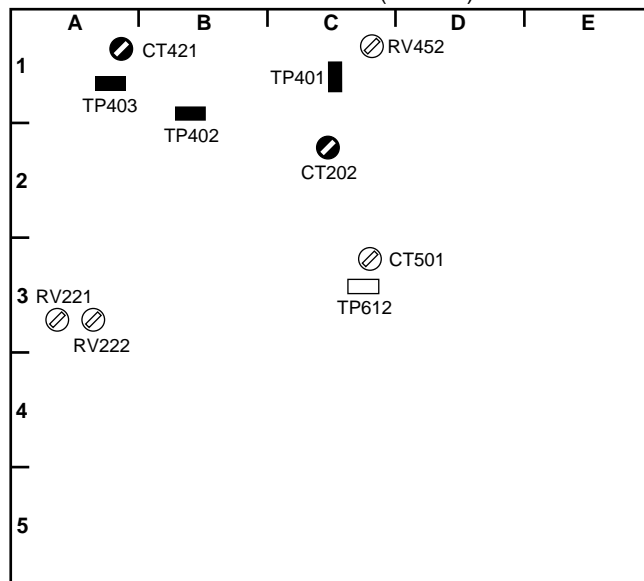
12-1-2. 4FSC Frequency Adjustment (CT421)

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : None
Measuring point : TP402/VA-172/172P/205B/205C (B-2)
VTR MODE : EE
Tape : None
Specification : $A = 14.31818 \pm 0.00001$ MHz
 <DSR-1>
 $A = 17.734476 \pm 0.000010$ MHz
 <DSR-1P>

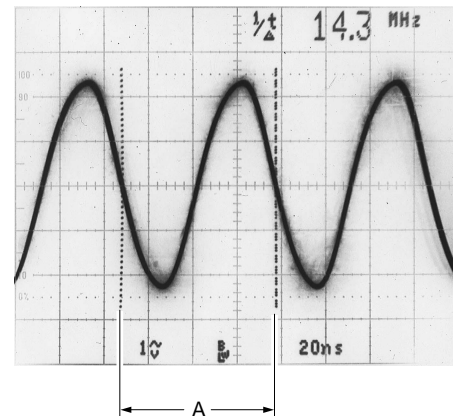
Adjusting method :

Short-circuit between TP403/VA-172/172P/205B/205C (A-1) and GND with a short clip, and adjust \odot CT421 (A-1) so that the specification is satisfied. Remove the short-clip after adjusting.

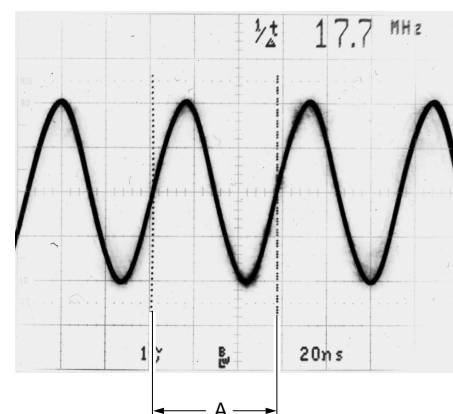
VA-172/172P/205B/205C BOARD (SIDE-A)



<For DSR-1>



<For DSR-1P>



12-1-3. PB SYNC Phase Adjustment (RV452)

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 630
Measuring point : S-VIDEO (Y) OUT, camera tool
 COMPONENT (Y) IN
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS <DSR-1>
 100 % FULL COLOR BARS <DSR-1P>
Specification : Coincide the SYNC Down edge of S-VIDEO (Y) OUT and camera tool input COMPONENT (Y) IN.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied, then finely adjust **RV452 (C-1)**.
 When the specification is satisfied, press the RESET button to register the data.

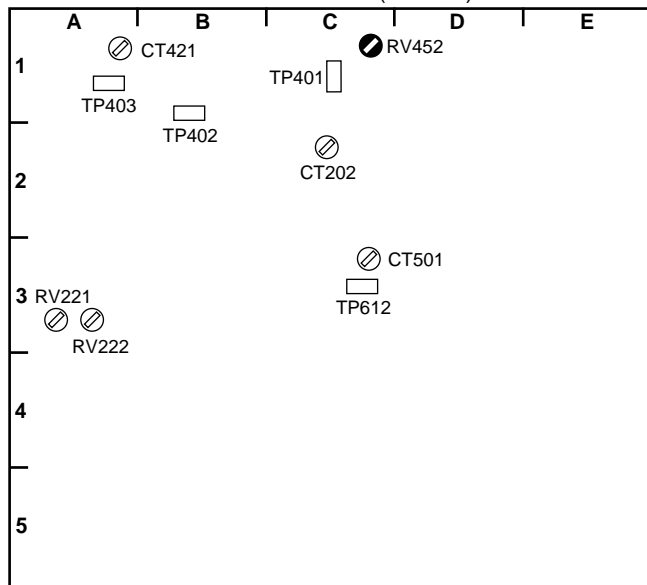
<For DSR-1P>

When the specification is not satisfied, perform the following step 1 to step 3.

Step

1. Set the MENU No. 652.
(Hexadecimal digit displayed on the display window.)
2. Press the ADVANCE button on at once.
(Two digit of right side is increased by one step.)
3. Readjust the PB SYNC Phase Adjustment.

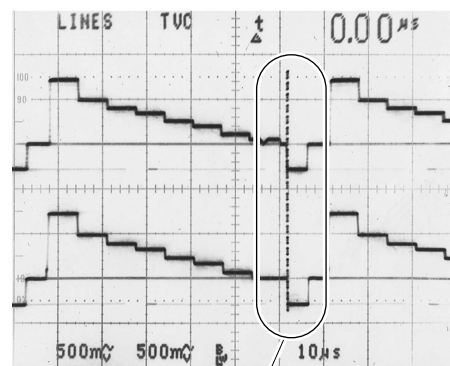
VA-172/172P/205B/205C BOARD (SIDE-A)



<For DSR-1>

COMPONENT (Y)

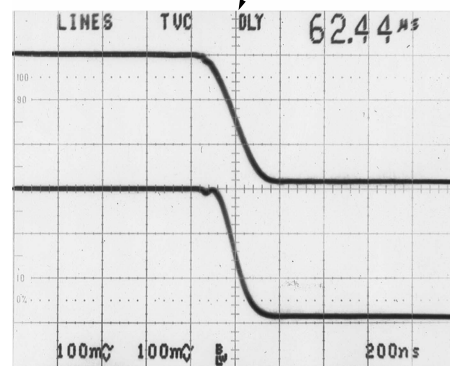
S-VIDEO (Y)



expansion

COMPONENT (Y)

S-VIDEO (Y)

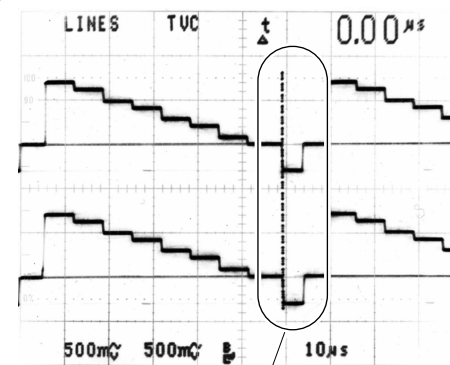


Coincide the SYNC Down edge

<For DSR-1P>

COMPONENT (Y)

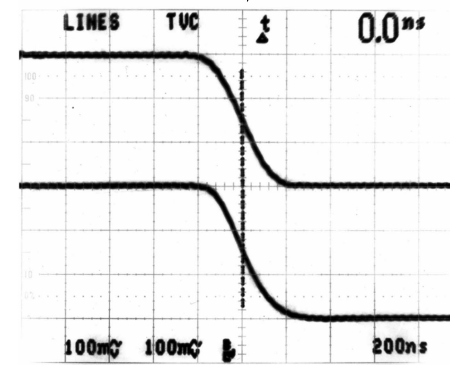
S-VIDEO (Y)



expansion

COMPONENT (Y)

S-VIDEO (Y)



Coincide the SYNC Down edge

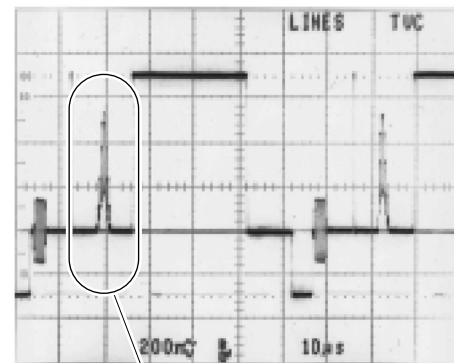
12-1-4. PB SYNC B-Y Y/C Delay Adjustment (RV221)

<For DSR-1>

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
MENU No. : 631
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape PULSE & BAR (R-Y off)
Specification : Adjust so that the envelope is symmetrical on the left and right sides.

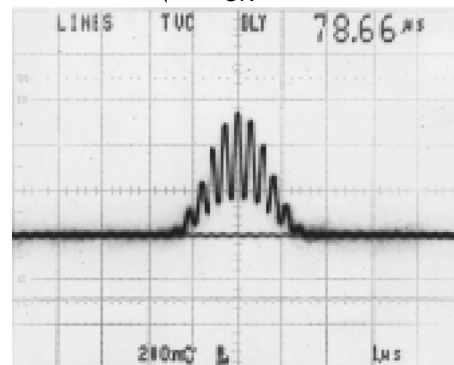
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied, then finely adjust RV221 (A-3).
 When the specification is satisfied, press the RESET button, and register the data.

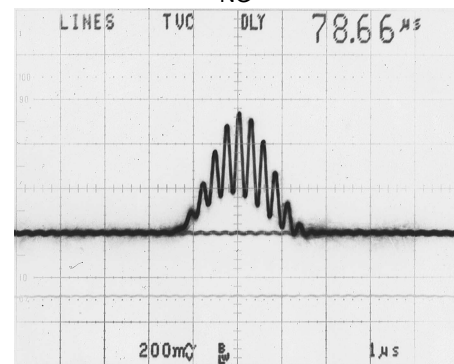


expansion

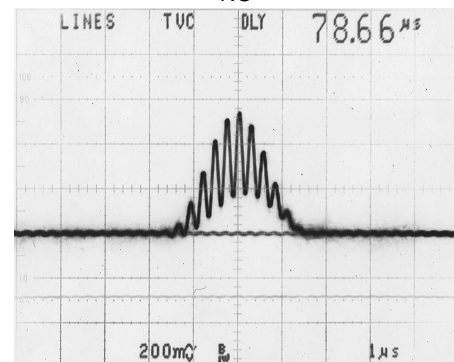
<OK>



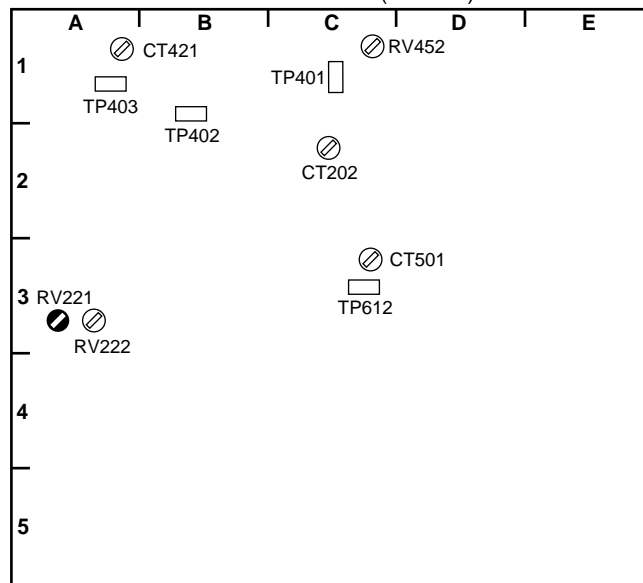
<NG>



<NG>

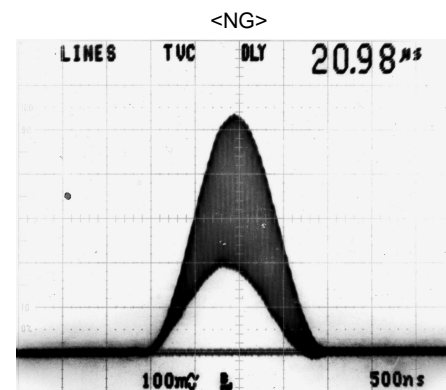
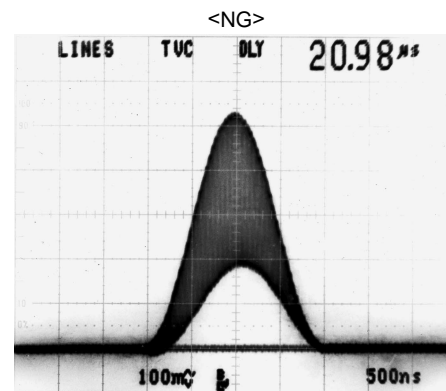
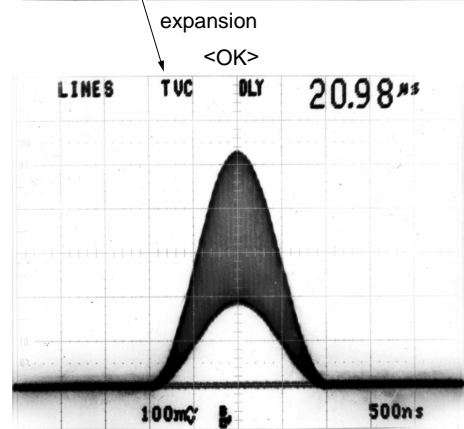
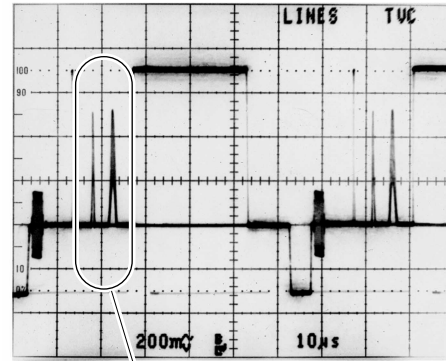


VA-172/172P/205B/205C BOARD (SIDE-A)

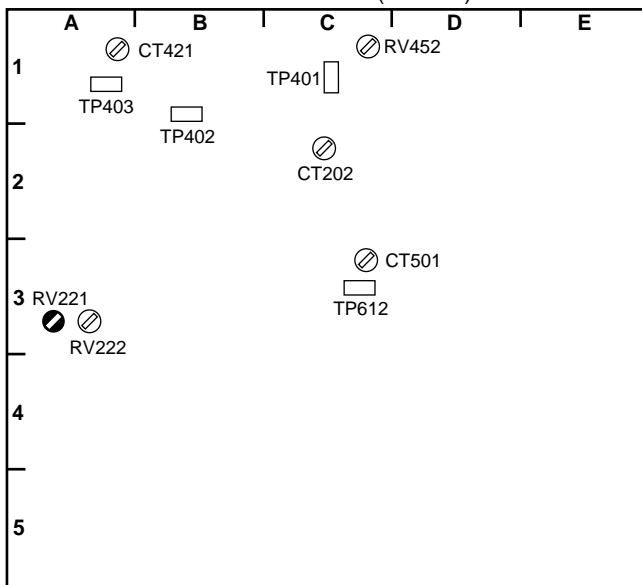


<For DSR-1P>

Connection : Connection 1
Input signal : 100 % COLOR BARS
MENU No. : 631
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape PULSE & BAR
 (R-Y off)
Specification : Adjust so that the envelope is symmetrical on the left and right sides.
Adjusting method :
 Press the ADVANCE button or SHIFT button so that the specification is satisfied, then finely adjust \odot RV221 (A-3).
 When the specification is satisfied, press the RESET button, and register the data.



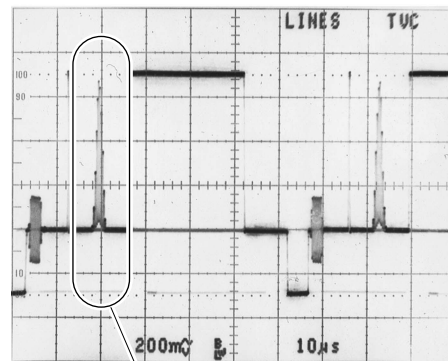
VA-172/172P/205C/205C BOARD (SIDE-A)



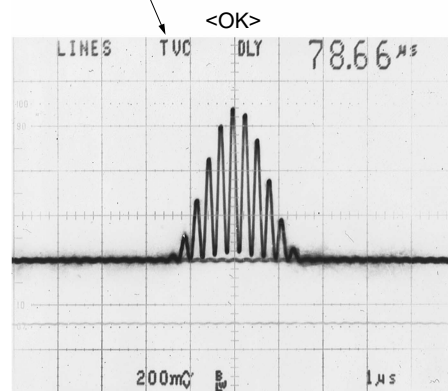
12-1-5. PB R-Y Y/C Delay Adjustment (RV222)

<For DSR-1>

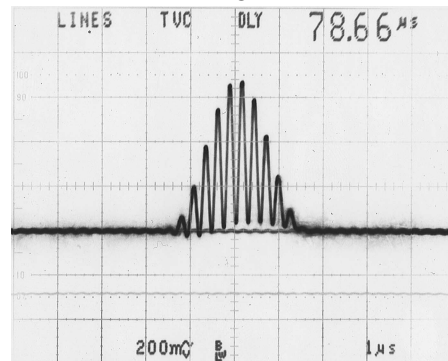
Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
MENU No. : None
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape PULSE & BAR
 (B-Y off)
Specification : Flatten the bottom side portion (envelope) of 12.5T pulse.
Adjusting method :
 Adjust \odot RV222 (A-3) so that the specification is satisfied.



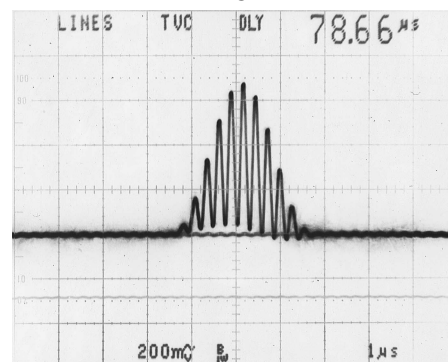
expansion



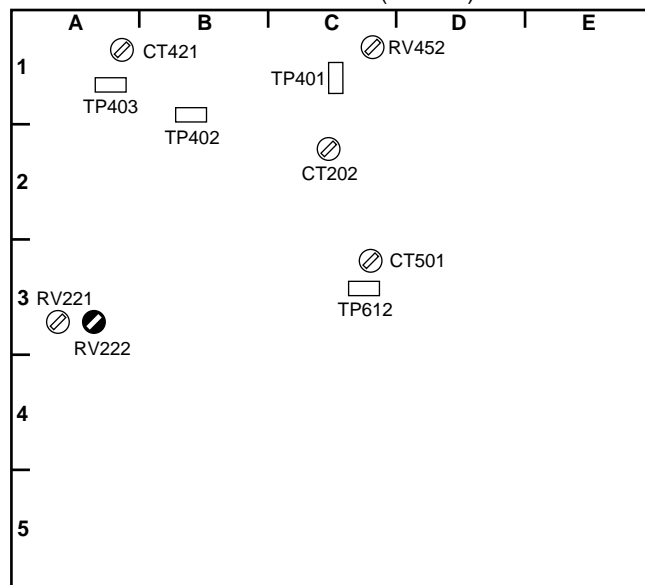
<NG>



<NG>

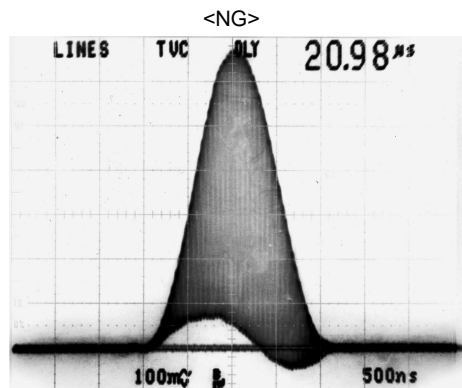
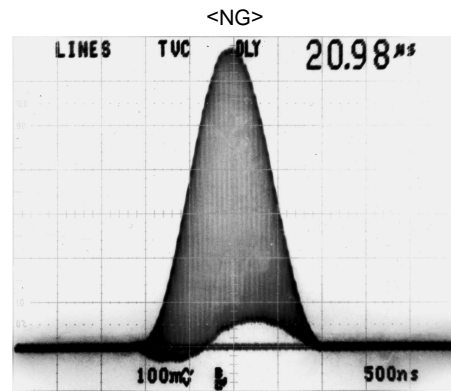
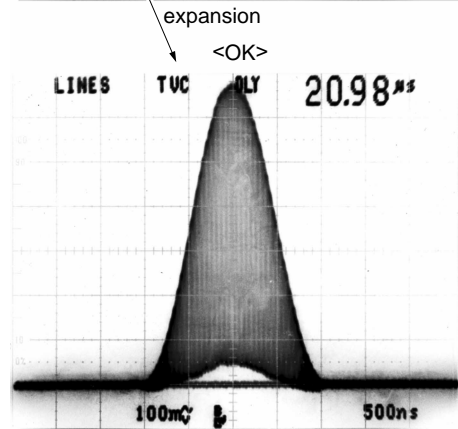
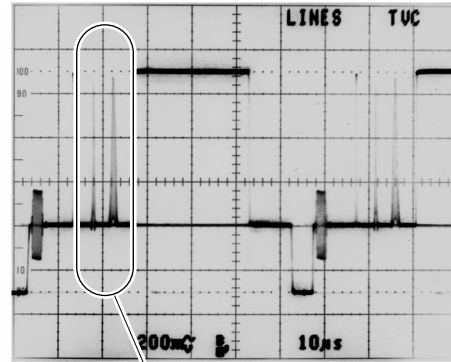


VA-172/172P/205B/205C BOARD (SIDE-A)

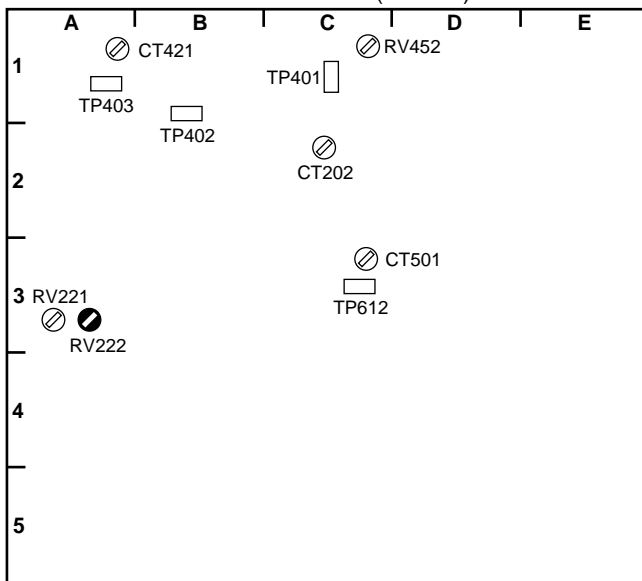


<For DSR-1P>

Connection : Connection 1
Input signal : 100 % COLOR BARS
MENU No. : None
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape PULSE & BAR
 (B-Y off)
Specification : Flatten the bottom side portion (envelope) of 10T pulse.
Adjusting method :
 Adjust \odot RV222 (A-3) so that the specification is satisfied.



VA-172/172P/205B/205C BOARD (SIDE-A)



12-1-6. INT 13.5 MHz Adjustment (CT501)

Connection : Connection 1

Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>

MENU No. : None

Measuring point : TP612/VA-172/172P/205B/205C (C-3)

VTR MODE : EE

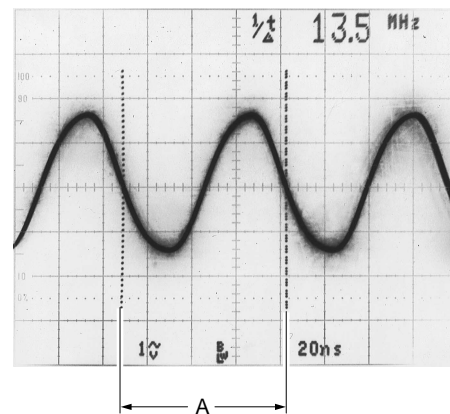
Tape : None

Specification : $A = 13.50000 \text{ MHz} \pm 0.00001 \text{ MHz}$

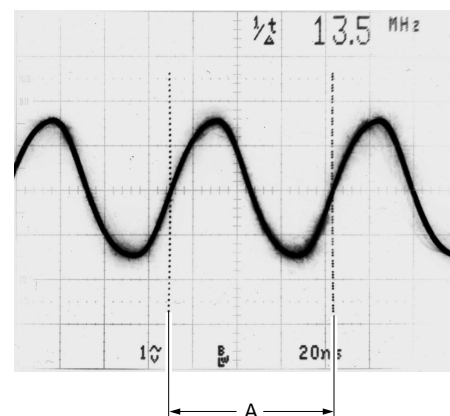
Adjusting method :

Adjust \odot CT501 (C-3) so that the specification is satisfied.

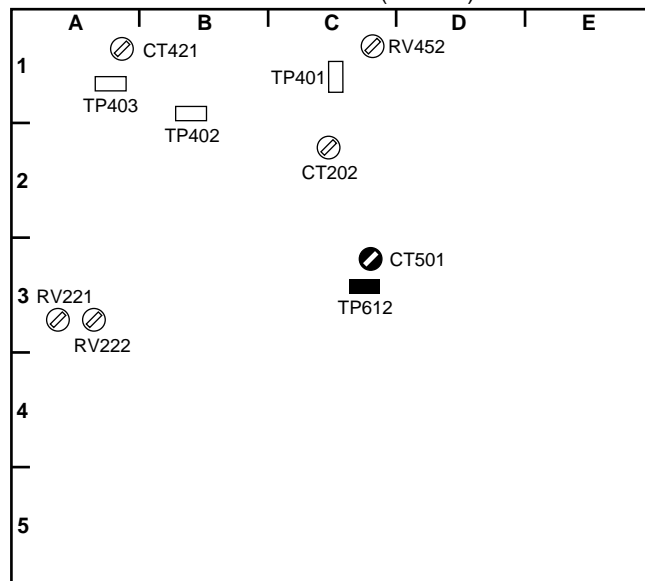
<For DSR-1>



<For DSR-1P>



VA-172/172P/205B/205C BOARD (SIDE-A)



12-2. IV-50 Board

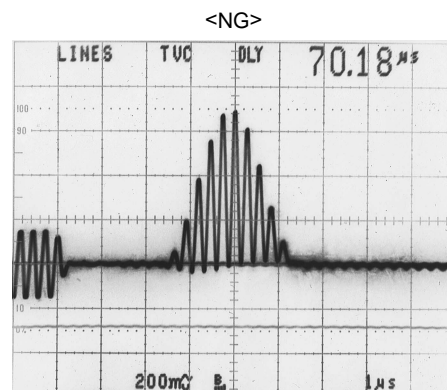
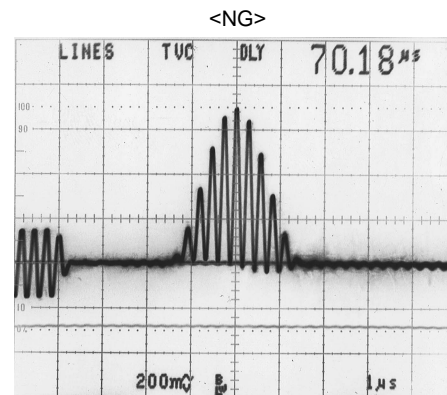
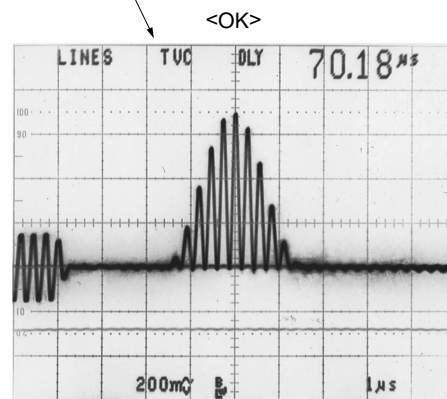
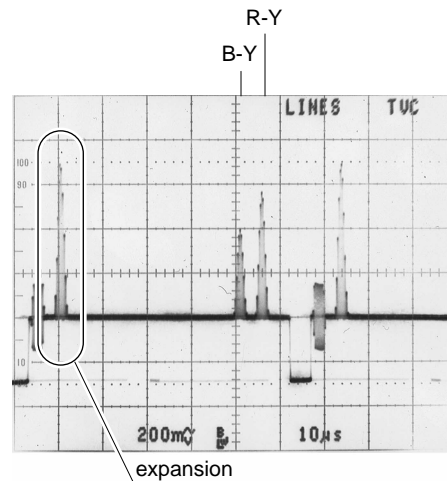
12-2-1. Y/C Delay Rough Adjustment

<For DSR-1>

Connection : Connection 1
Input signal : MOD 12.5T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion
(envelope) of 12.5T pulse.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification. Press the RESET button after satisfying the specification to register the data.

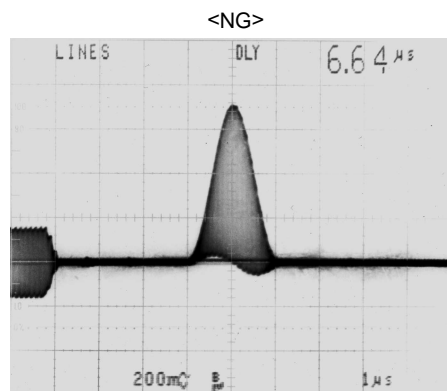
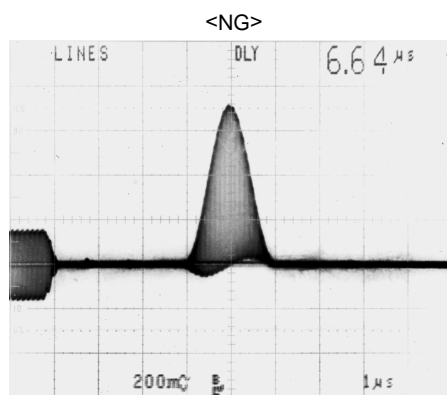
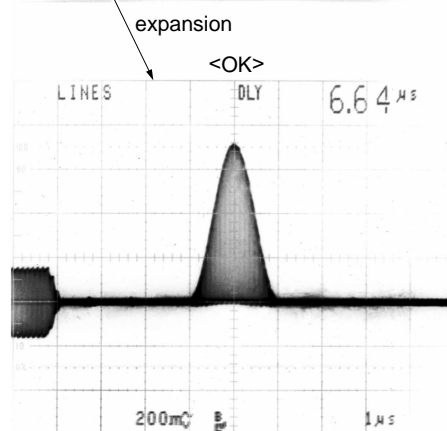
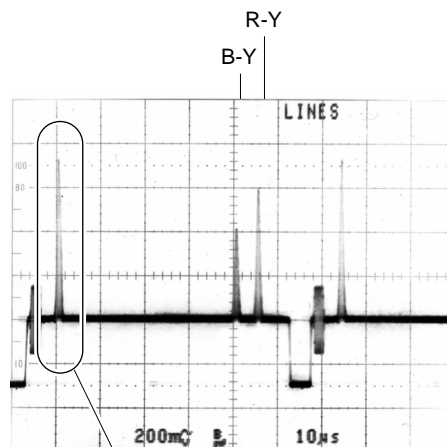


<For DSR-1P>

Connection : Connection 1
Input signal : MOD 10T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of 10T pulse.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification.
 Press the RESET button after satisfying the specification to register the data.



12-2-2. R-Y Y/C Delay Adjustment (RV051)

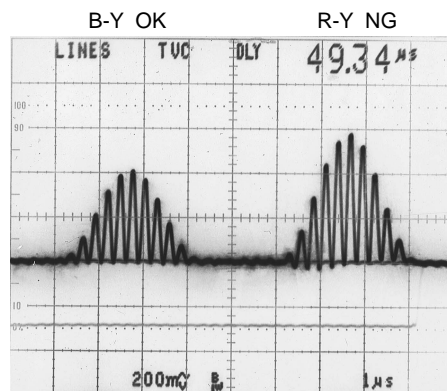
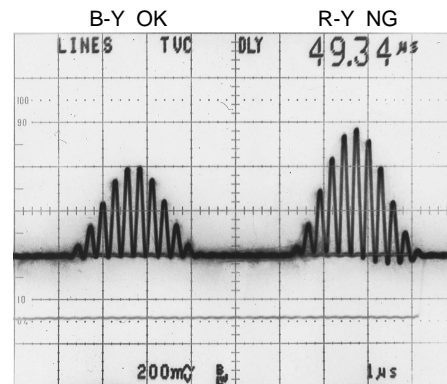
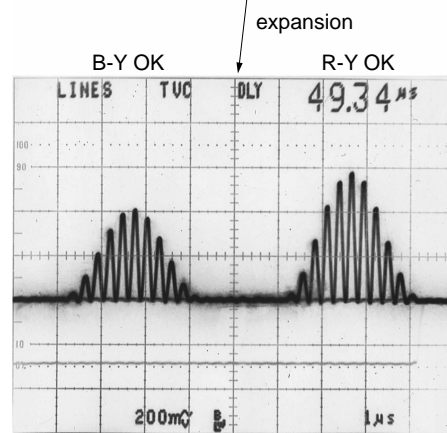
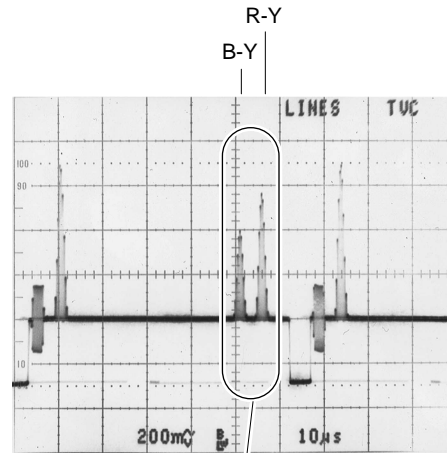
<For DSR-1>

Connection : Connection 1
Input signal : MOD 12.5T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of R-Y modulation pulse.

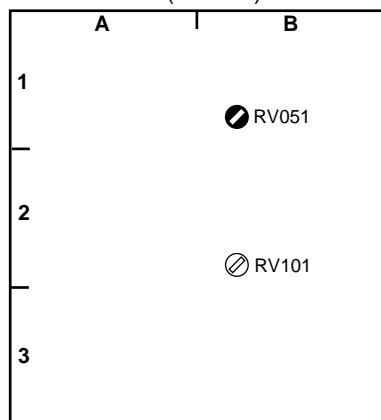
Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust

RV051 (B-1) so that the specification is satisfied.



IV-50 BOARD (SIDE-A)

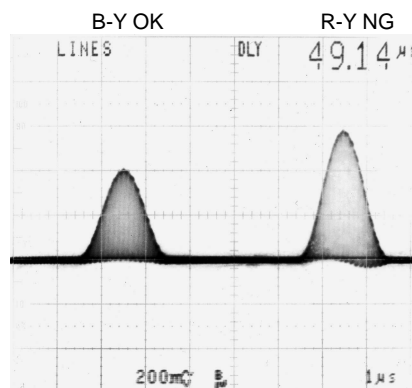
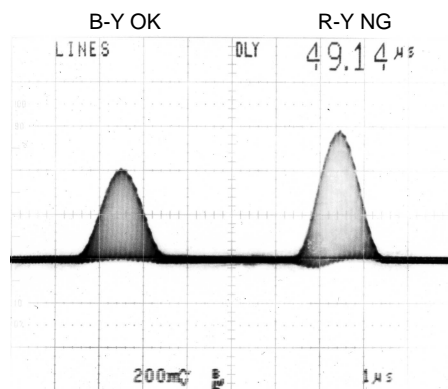
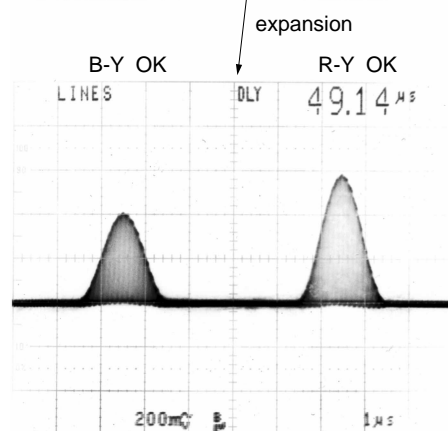
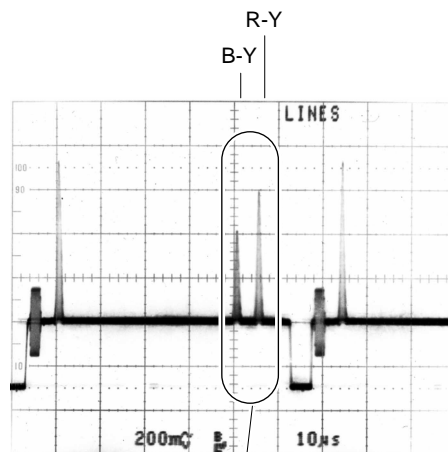


<For DSR-1P>

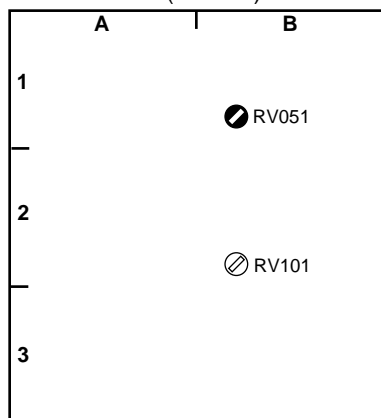
Connection : Connection 1
Input signal : MOD 10T (B-Y OFF)
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of R-Y modulation pulse.

Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust
 ⓪RV051 (B-1) so that the specification is satisfied.



IV-50 BOARD (SIDE-A)



12-2-3. B-Y Y/C Delay Adjustment (RV101)

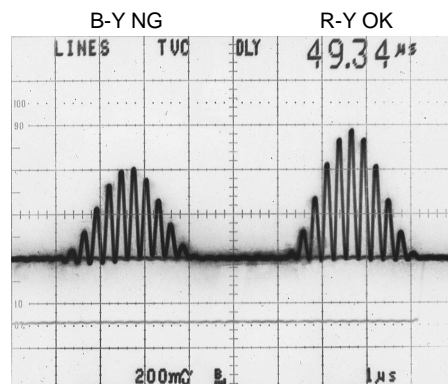
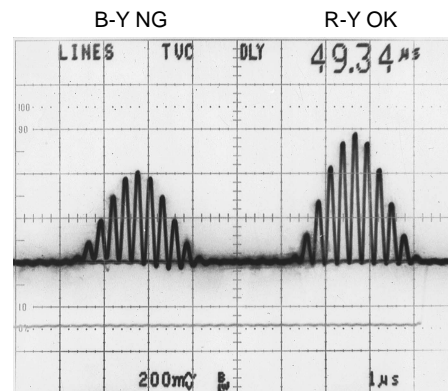
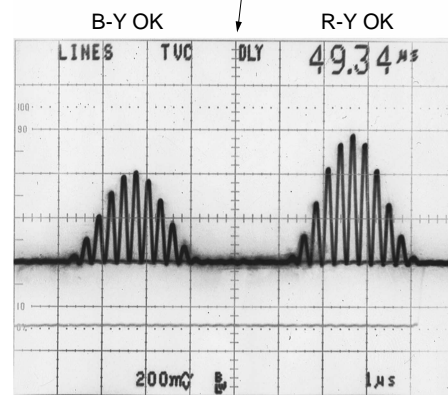
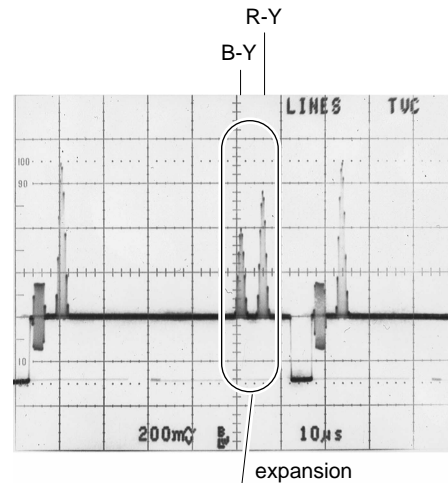
<For DSR-1>

Connection : Connection 1
Input signal : MOD 12.5T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of B-Y modulation pulse.

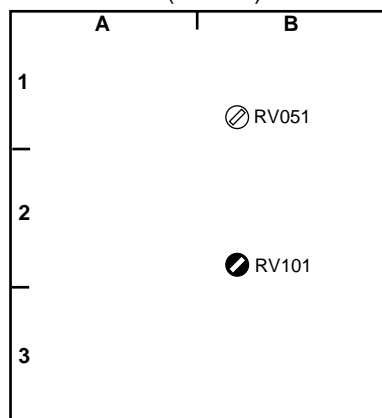
Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust

RV101 (B-2) so that the specification is satisfied.



IV-50 BOARD (SIDE-A)

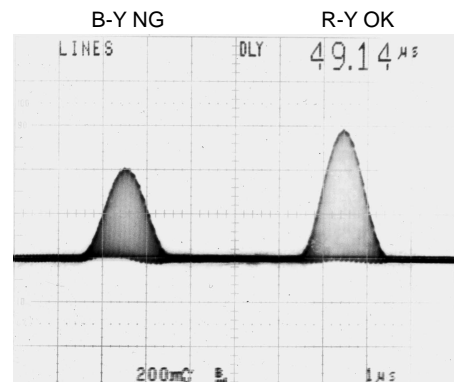
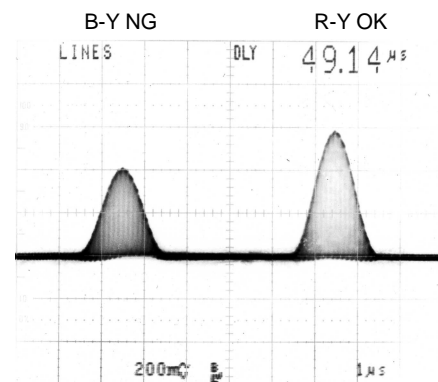
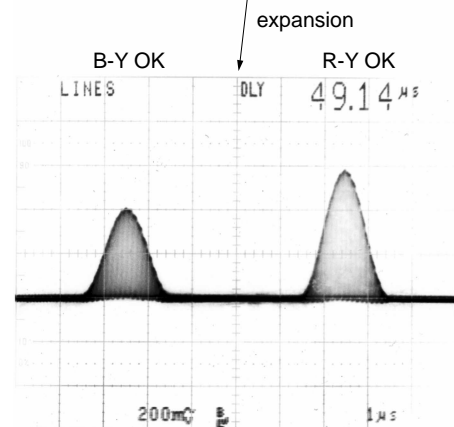
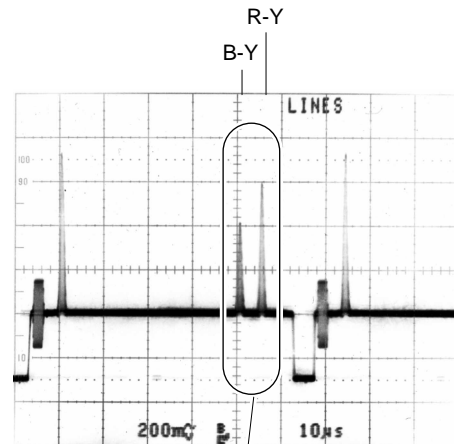


<For DSR-1P>

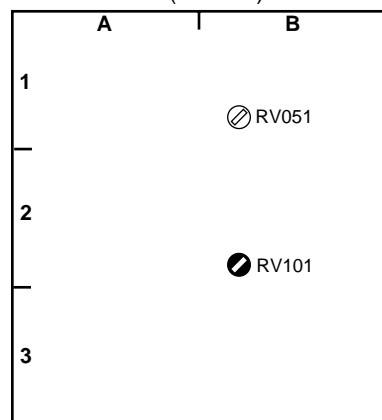
Connection : Connection 1
Input signal : MOD 10T (R-Y OFF)
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of B-Y modulation pulse.

Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust
 ⓄRV101 (B-2) so that the specification is satisfied.



IV-50 BOARD (SIDE-A)



12-3. Video Signal Adjustment

Maintenance Menu Settings

1. Press the MENU button while pressing the SHIFT button, and release the SHIFT button while pressing the MENU button.
Check that the display window (LCD) displays “600_oFF” after about 1 second later, and then release the MENU button.
2. Press the RESET button so that the “oFF” displayed blinks, and press the ADVANCE button to display “on”.
3. Press the RESET button so that the “600” displayed blinks. This will enable the maintenance menu to be set.
(Hereafter press the ADVANCE button or SHIFT button to change the Menu No. and press the RESET button to set the Menu No.)

Note

Refer to 2-25. Menu for details.

12-3-1. Encoder Y SYNC Level Adjustment

Connection : Connection 1

Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>

MENU No. : 620

Measuring point : S-VIDEO (Y) OUT

VTR MODE : PB

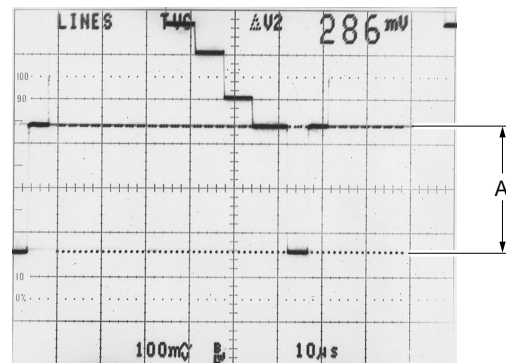
Tape : Alignment tape
75 % FULL COLOR BARS <DSR-1>
100 % FULL COLOR BARS <DSR-1P>

Specification : Sync level
 $A = 286 \pm 4 \text{ mV p-p}$ <DSR-1>
 $A = 300 \pm 4 \text{ mV p-p}$ <DSR-1P>

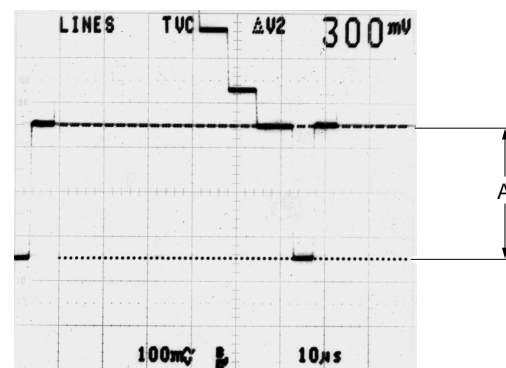
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.

<For DSR-1>



<For D SR-1P>



12-3-2. Encoder Y Level Adjustment

Connection : Connection 1

Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>

MENU No. : 621

Measuring point : S-VIDEO (Y) OUT

VTR MODE : PB

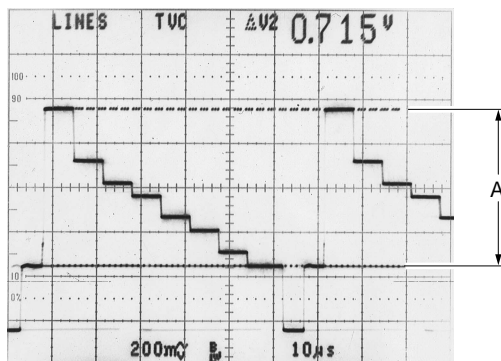
Tape : Alignment tape
75 % FULL COLOR BARS <DSR-1>
100 % FULL COLOR BARS <DSR-1P>

Specification : Y level
 $A = 714 \pm 5 \text{ mV p-p}$ <DSR-1>
 $A = 700 \pm 5 \text{ mV p-p}$ <DSR-1P>

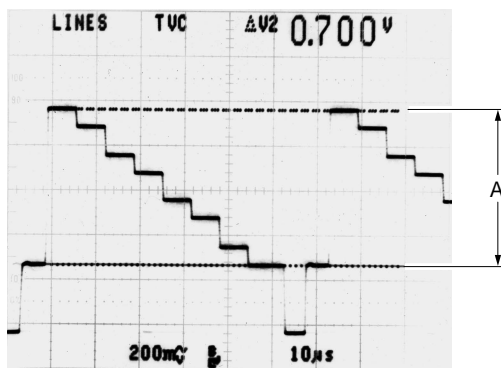
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.

<For DSR-1>



<For DSR-1P>



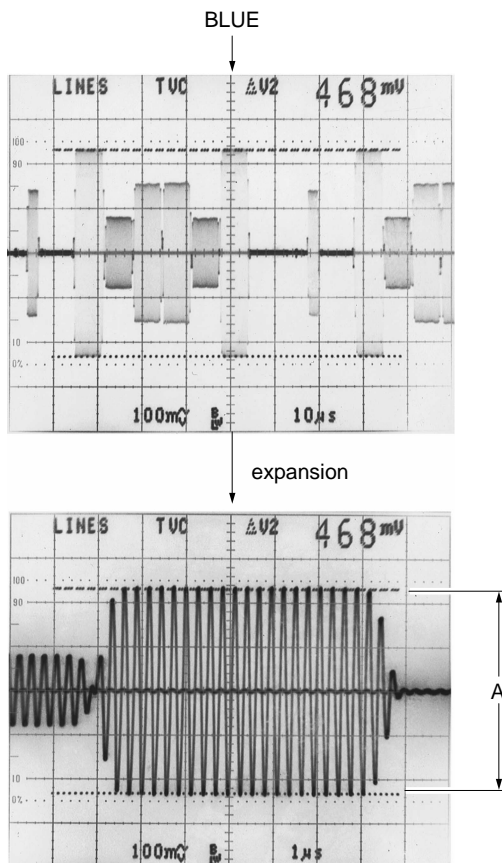
12-3-3. Encoder Chroma Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 622
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS (R-Y
 OFF) <DSR-1>
 100 % FULL COLOR BARS (R-Y
 OFF) <DSR-1P>
Specification : Chroma (blue) level
 $A = 468 \pm 5 \text{ mV p-p}$ <DSR-1>
 $A = 612 \pm 5 \text{ mV p-p}$ <DSR-1P>

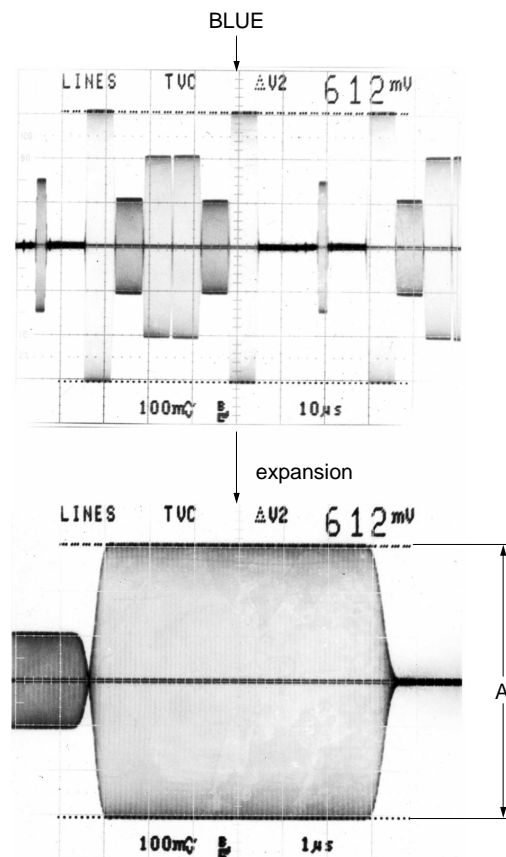
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.

<For DSR-1>



<For DSR-1P>



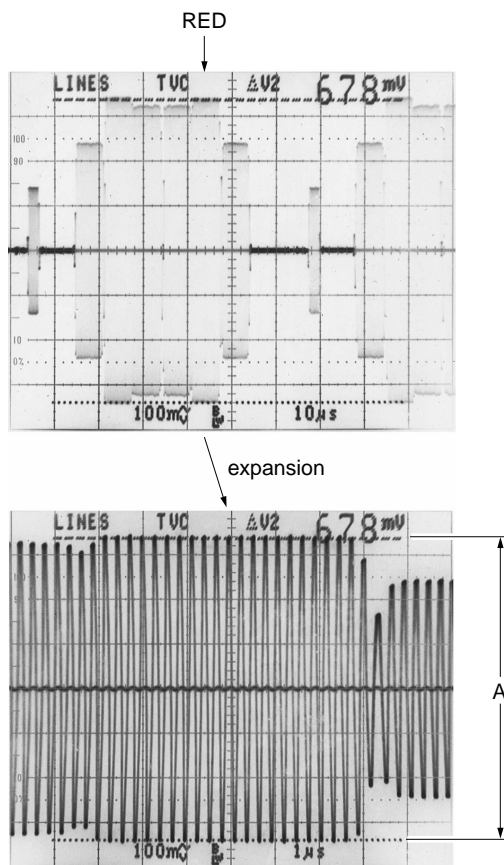
12-3-4. D/A R-Y Output Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 623
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS <DSR-1>
 100 % FULL COLOR BARS <DSR-1P>
Specification : Chroma (red) level
 $A = 678 \pm 5 \text{ mV p-p}$ <DSR-1>
 $A = 885 \pm 5 \text{ mV p-p}$ <DSR-1P>

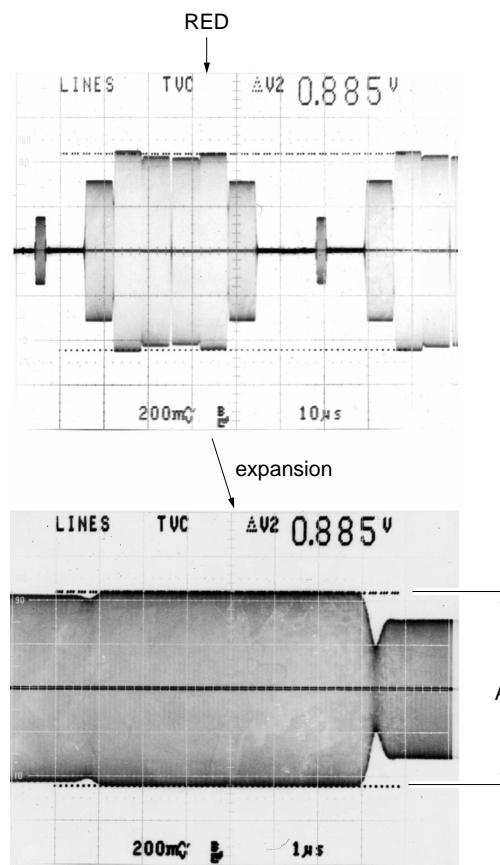
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.

<For DSR-1>



<For DSR-1P>



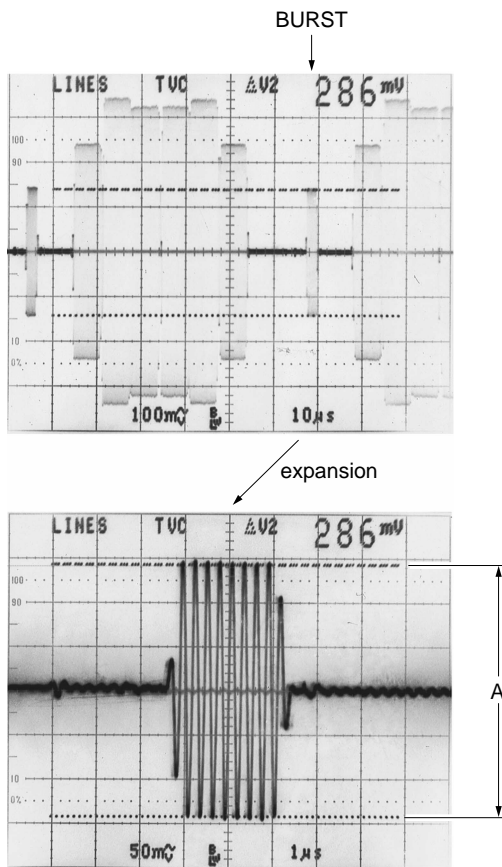
12-3-5. Encoder Burst Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 624
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS <DSR-1>
 100 % FULL COLOR BARS <DSR-1P>
Specification : Burst level
 $A = 286 \pm 3 \text{ mV p-p}$ <DSR-1>
 $A = 300 \pm 3 \text{ mV p-p}$ <DSR-1P>

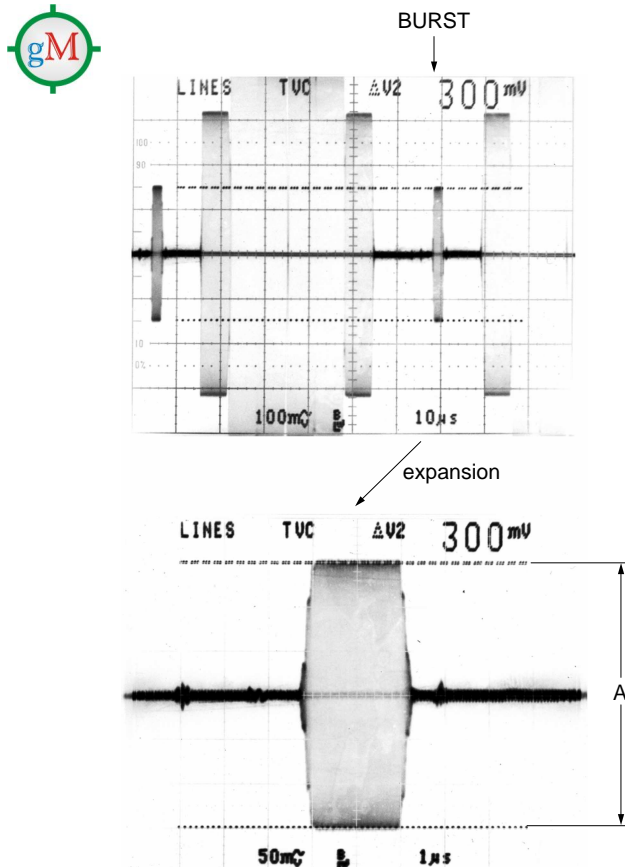
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.

<For DSR-1>



<For DSR-1P>

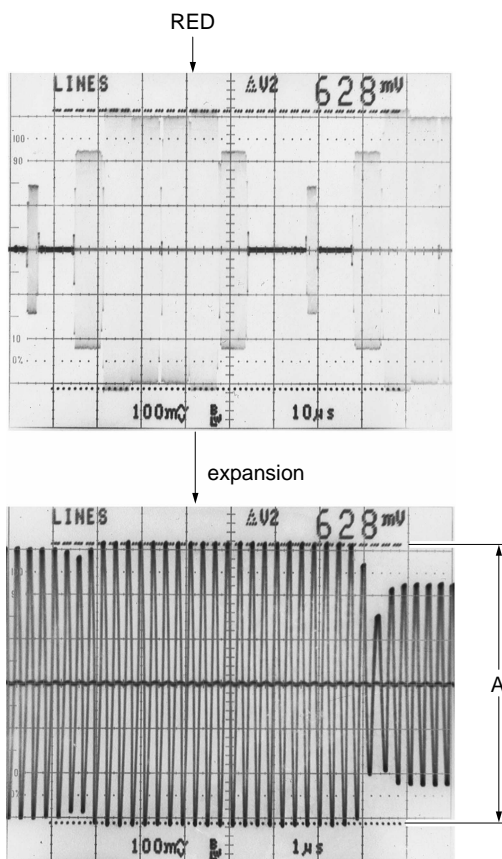


12-3-6. Encoder Chroma level (Setup Adder on) Adjustment <For DSR-1 only>

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
MENU No. : 625
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS
Specification : Chroma (red) level
 $A = 627 \pm 5 \text{ mV p-p}$

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.

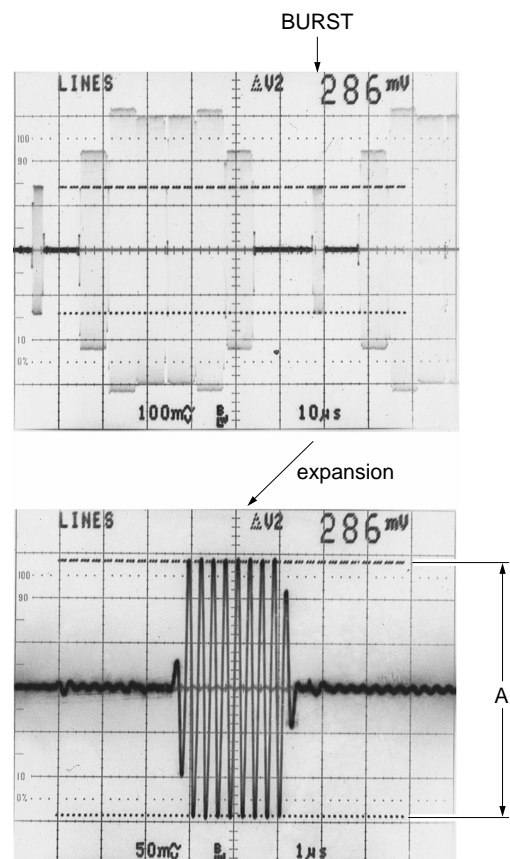


12-3-7. Encoder Burst Level (Setup Adder on) Adjustment <For DSR-1 only>

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
MENU No. : 626
Measuring point : S-VIDEO (C) OUT
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS
Specification : Burst level
 $A = 286 \pm 3 \text{ mV p-p}$

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.



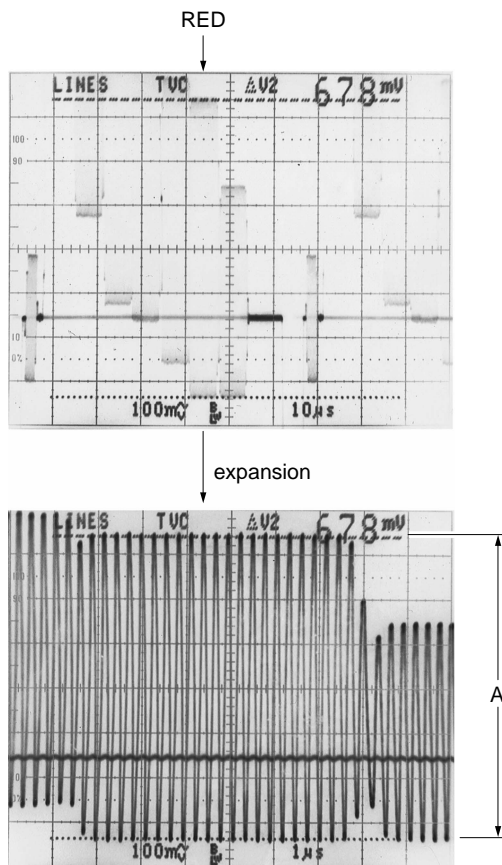
12-3-8. VBS Chroma Mix Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 627
Measuring point : S-VIDEO OUT
VTR MODE : PB
Tape : Alignment tape
75 % FULL COLOR BARS <DSR-1>
100 % FULL COLOR BARS <DSR-1P>
Specification : Chroma (red) level
 $A = 678 \pm 5 \text{ mV p-p}$ <DSR-1>
 $A = 885 \pm 5 \text{ mV p-p}$ <DSR-1P>

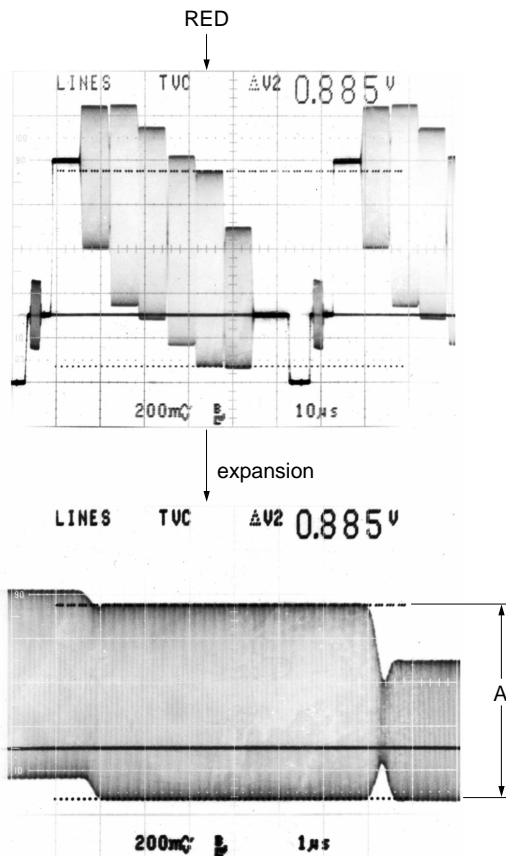
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.

<For DSR-1>



<For DSR-1P>



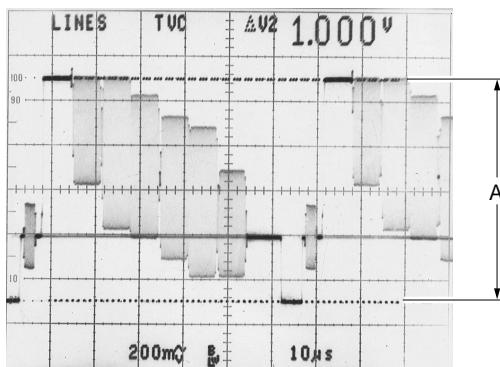
12-3-9. VBS Y Mix Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 628
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape
75 % FULL COLOR BARS <DSR-1>
100 % FULL COLOR BARS <DSR-1P>
Specification : Video level
 $A = 1.00 \pm 0.01 \text{ V p-p}$

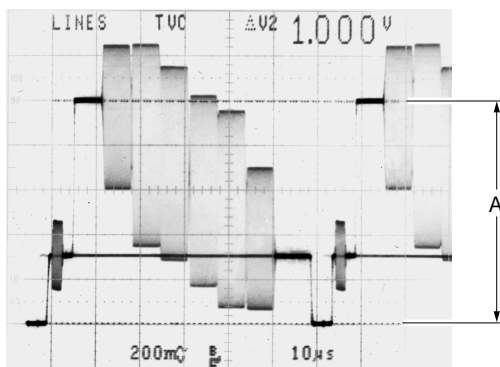
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.

<For DSR-1>



<For DSR-1P>



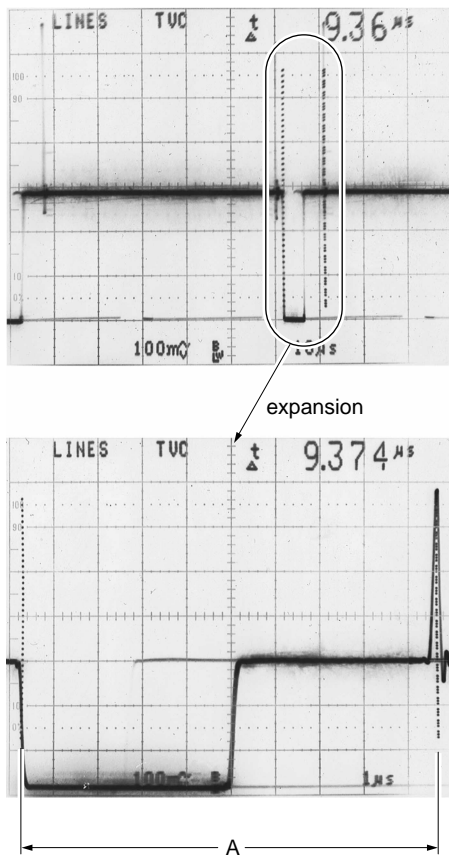
12-3-10. PB Video Phase Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>
MENU No. : 629
Measuring point : S-VIDEO (Y) OUT
VTR MODE : PB
Tape : Alignment tape (Blanking marker)
Specification : Sync Down Edge
→ 1 bit width pulse:
 $A = 9.4 \pm 0.2 \mu\text{s}$ <DSR-1>
 $A = 10.74 \pm 0.2 \mu\text{s}$ <DSR-1P>

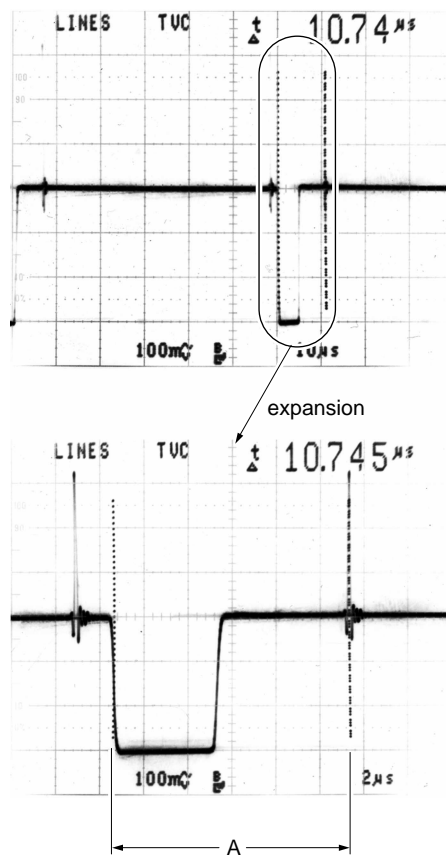
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. When the specification is satisfied, press the RESET button to register the data.

<For DSR-1>



<For DSR-1P>



12-3-11. PB SYNC Phase Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
 <DSR-1>
 100 % COLOR BARS <DSR-1P>
MENU No. : 630
Measuring point : S-VIDEO (Y) OUT, Camera tool
 COMPONENT (Y) IN
VTR MODE : PB
Tape : Alignment tape
 75 % FULL COLOR BARS <DSR-1>
 100 % FULL COLOR BARS <DSR-1P>
Specification : Coincide the SYNC Down edge of S-VIDEO (Y) OUT and camera tool input COMPONENT (Y) IN.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied, then finely adjust \odot RV452 (C-1). Press the RESET button after satisfying the specification to register the data.

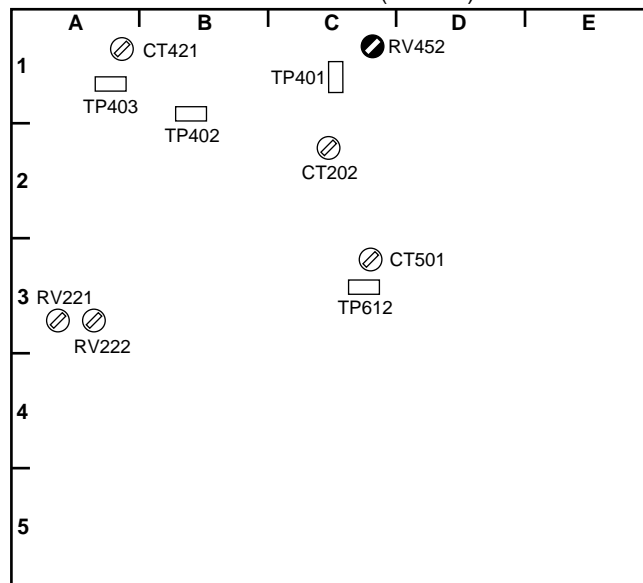
<For DSR-1P>

When the specification is not satisfied, perform the following step 1 to step 3.

Step

1. Set the MENU No. 652.
(Hexadecimal digit displayed on the display window.)
2. Press the ADVANCE button on at once.
(Two digit of right side is increased by one step.)
3. Readjust the PB SYNC Phase Adjustment.

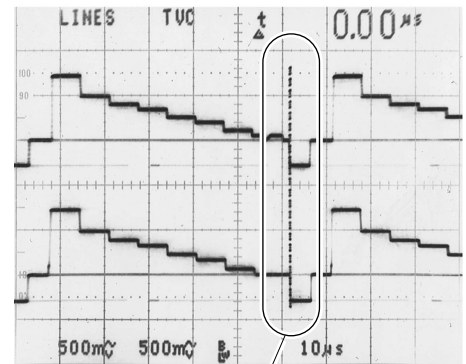
VA-172/172P/205B/205C BOARD (SIDE-A)



<For DSR-1>

COMPONENT (Y)

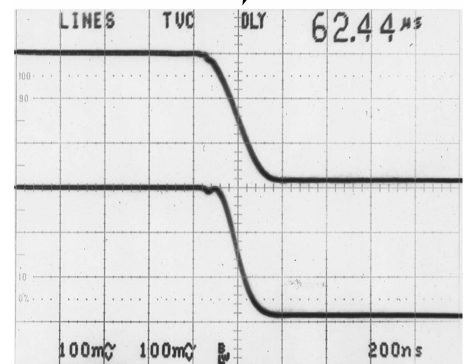
S-VIDEO (Y)



expansion

COMPONENT (Y)

S-VIDEO (Y)

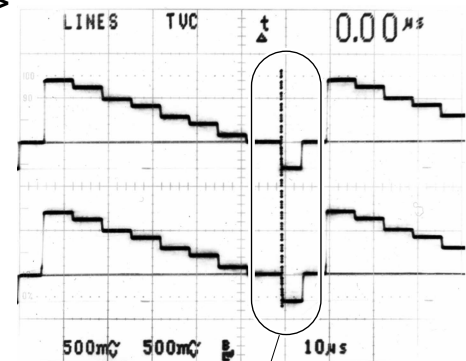


Coincide the SYNC Down edge

<For DSR-1P>

COMPONENT (Y)

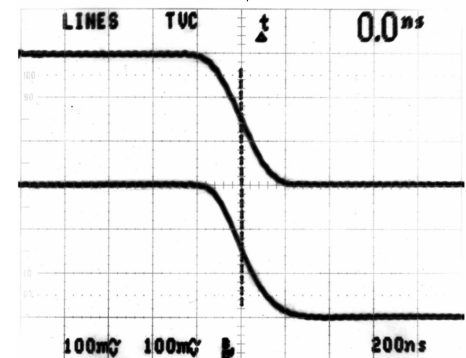
S-VIDEO (Y)



expansion

COMPONENT (Y)

S-VIDEO (Y)



Coincide the SYNC Down edge

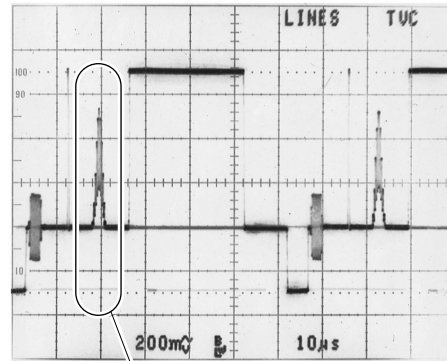
12-3-12. PB B-Y Y/C Delay Adjustment

<For DSR-1>

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
MENU No. : 631
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape PULSE & BAR
 (R-Y off)
Specification : Adjust so that the envelope is symmetrical on the left and right sides.

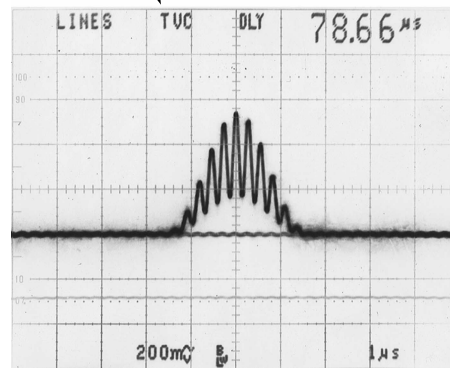
Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied, then finely adjust **RV221** (A-3). Press the RESET button after satisfying the specification to register the data.

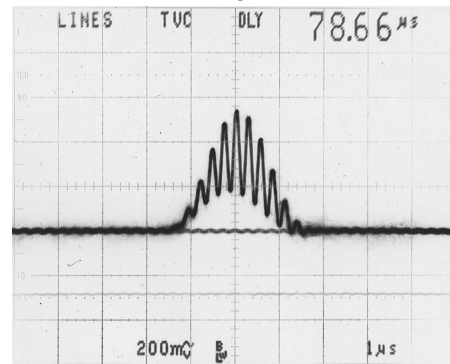


expansion

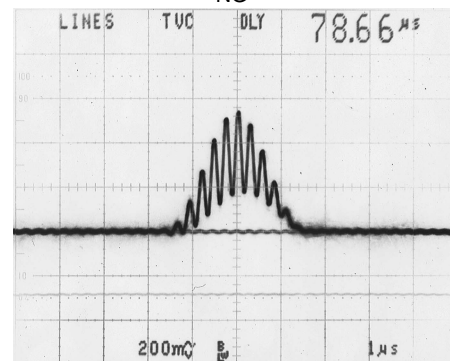
<OK>



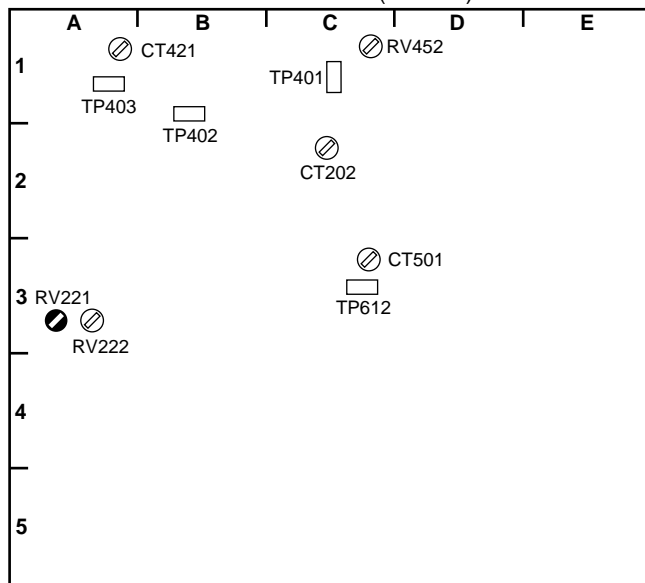
<NG>



<NG>



VA-172/172P/205B/205C BOARD (SIDE-A)



<For DSR-1P>

Connection : Connection 1

Input signal : 100 % COLOR BARS

MENU No. : 631

Measuring point : VIDEO OUT

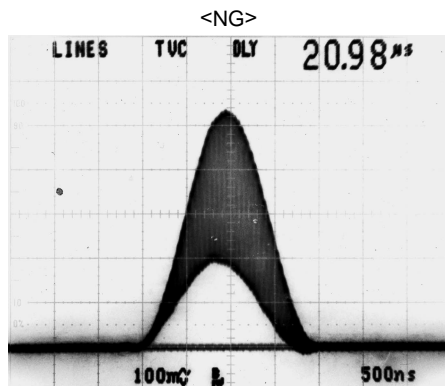
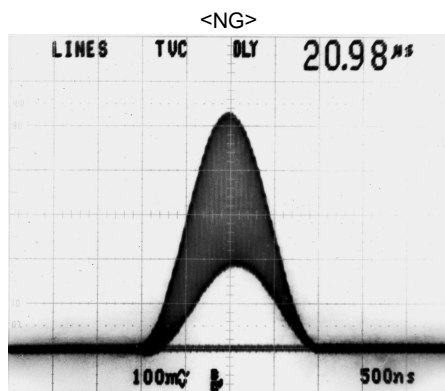
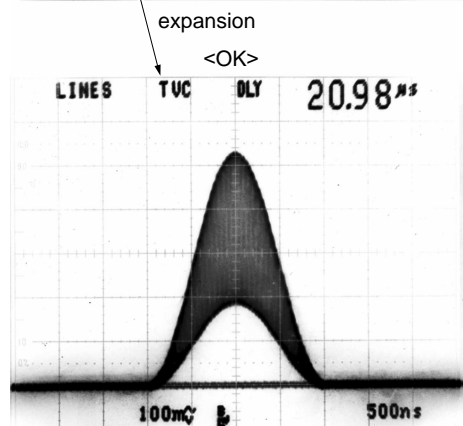
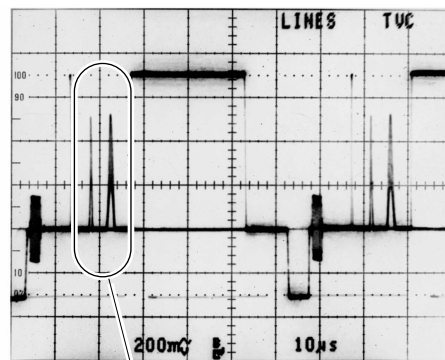
VTR MODE : PB

Tape : Alignment tape PULSE & BAR
(R-Y off)

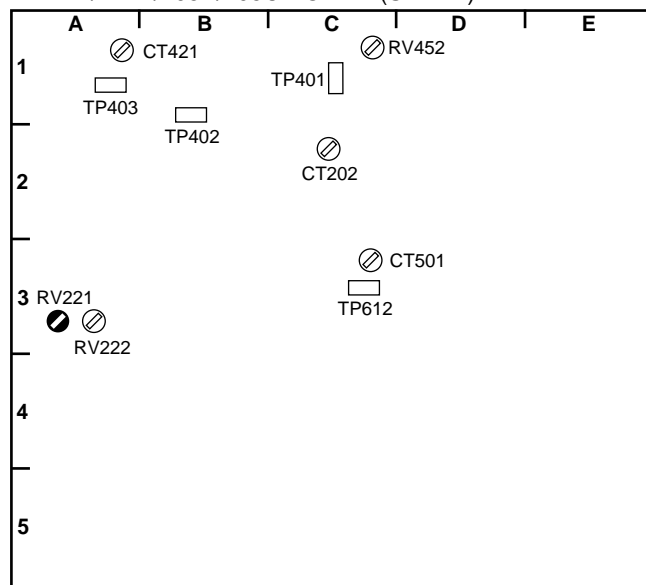
Specification : Adjust so that the envelope is symmetrical on the left and right sides.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied, then finely adjust \odot RV221 (A-3). Press the RESET button after satisfying the specification to register the data.



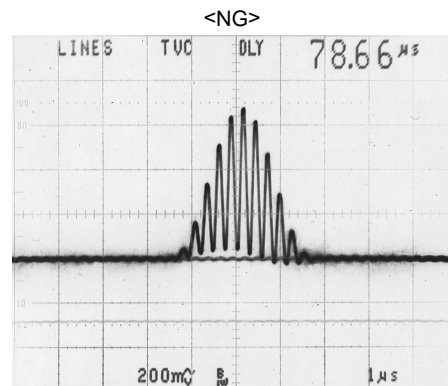
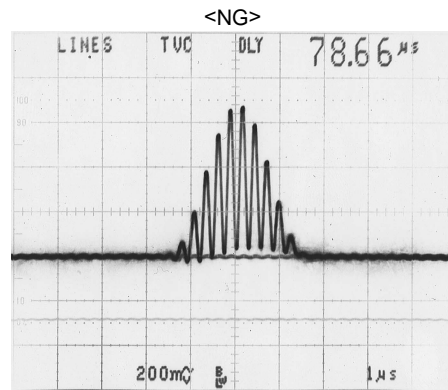
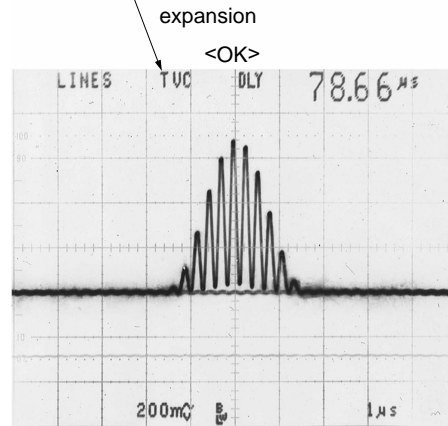
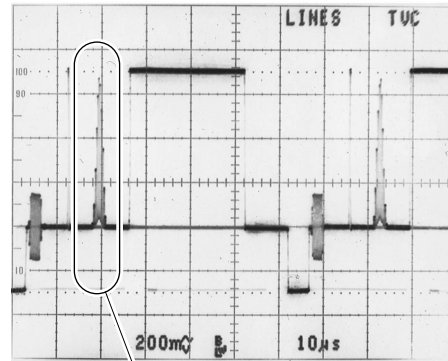
VA-172/172P/205B/205C BOARD (SIDE-A)



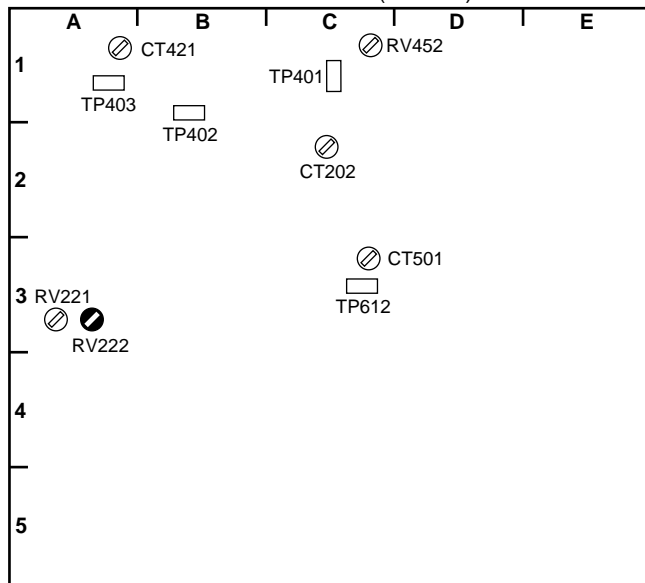
12-3-13. PB R-Y Y/C Delay Adjustment

<For DSR-1>

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
MENU No. : None
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape PULSE & BAR
 (B-Y off)
Specification : Flatten the bottom side portion (envelope) of 12.5T pulse.
Adjusting method :
 Adjust \odot RV222 (A-3) so that the specification is satisfied.

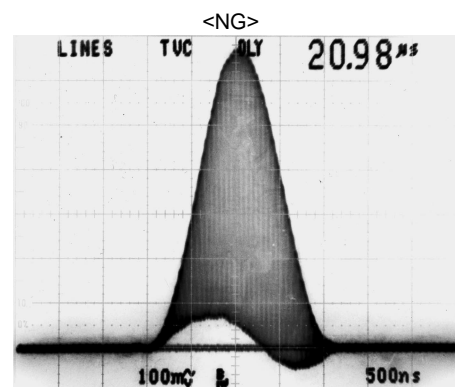
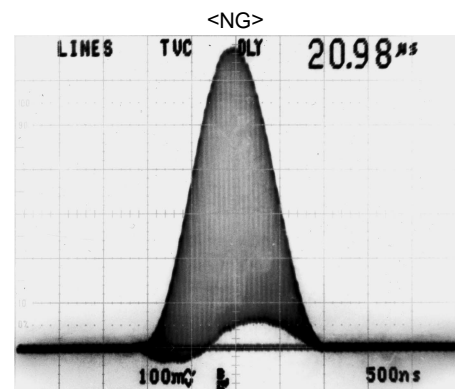
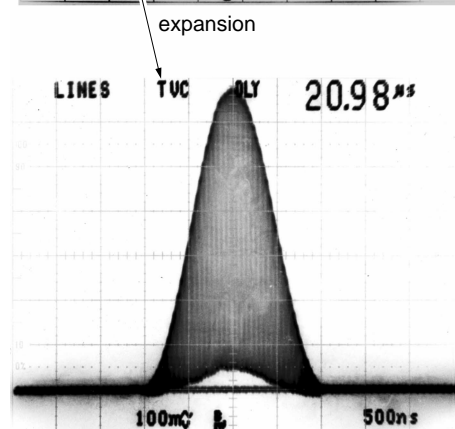
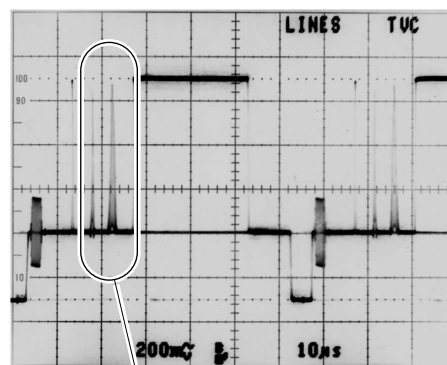


VA-172/172P/205B/205C BOARD (SIDE-A)

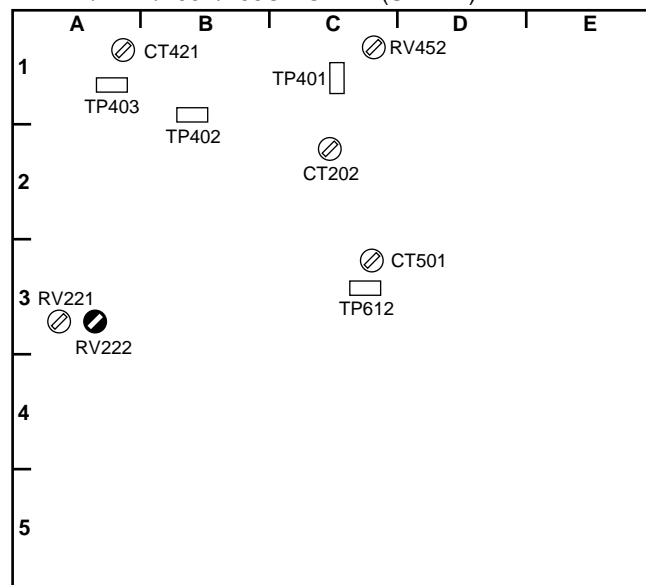


<For DSR-1P>

Connection : Connection 1
Input signal : 100 % COLOR BARS
MENU No. : None
Measuring point : VIDEO OUT
VTR MODE : PB
Tape : Alignment tape PULSE & BAR
 (B-Y off)
Specification : Flatten the bottom side portion (envelope) of 10T pulse.
Adjusting method :
 Adjust \odot RV222 (A-3) so that the specification is satisfied.



VA-172/172P/205B/205C BOARD (SIDE-A)



12-3-14. A/D Y Clamp Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>

MENU No. : 632
Measuring point : None
VTR MODE : EE
Adjusting method :

Press the RESET button after waiting for the two digits on the right of the display window (LCD) to display “0F” or “10” to register the data.

12-3-15. A/D Y Input Level Adjustment

Note

Before performing this adjustment, be sure to perform 12-3-14. A/D Y Clamp Level Adjustment.

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>

MENU No. : 633
Measuring point : None
VTR MODE : EE
Adjusting method :

Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “EA” on the right. Then press the RESET button to register the data.

12-3-16. A/D R-Y Input Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>

MENU No. : 634
Measuring point : None
VTR MODE : EE
Adjusting method :

Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “32” on the right. Then press the RESET button to register the data.

12-3-17. A/D B-Y Input Level Adjustment

Connection : Connection 1
Input signal : 75 % COLOR BARS with SET UP
<DSR-1>
100 % COLOR BARS <DSR-1P>

MENU No. : 635
Measuring point : None
VTR MODE : EE
Adjusting method :

Press the ADVANCE button or SHIFT button so that the display window (LCD) displays “32” on the right. Then press the RESET button to register the data.

12-3-18. REC Video Phase Adjustment

<For DSR-1>

Connection : Connection 1
Input signal : BOWTIE
MENU No. : 636
Measuring point : S-VIDEO (Y) OUT, Camera tool
 COMPONENT (R-Y) IN
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Difference on Bowtie dip point
 $= 0 \pm 40$ ns.

Adjusting method :

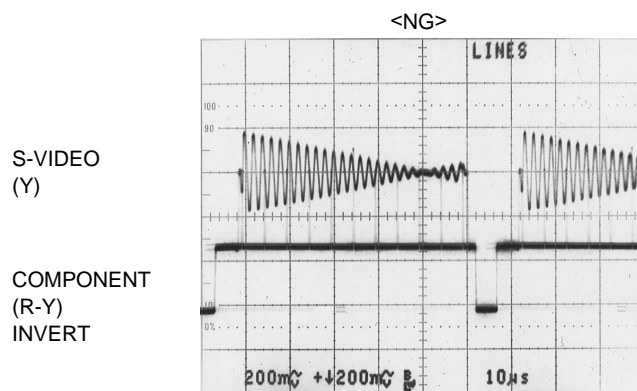
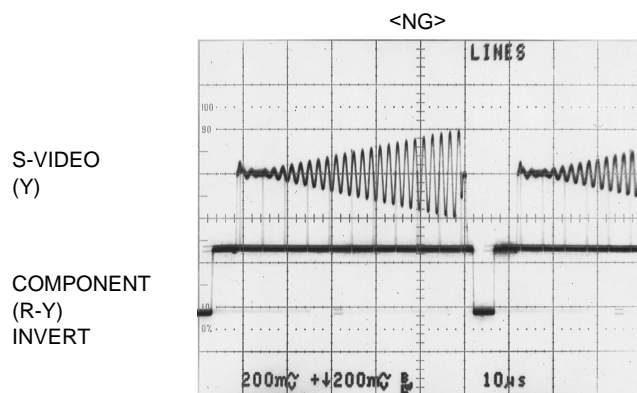
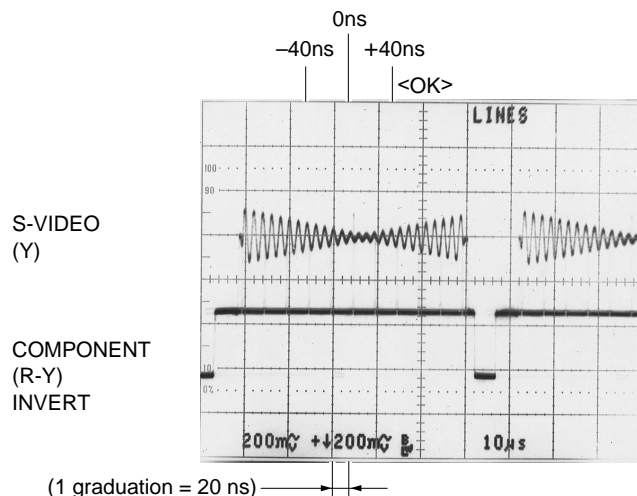
Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification. Press the RESET button after satisfying the specification to register the data.

* OSCILLOSCOPE

CH-1 : S-VIDEO (Y)

CH-2 : COMPONENT (R-Y) <INVERT>

MODE : ADD



<For DSR-1P>

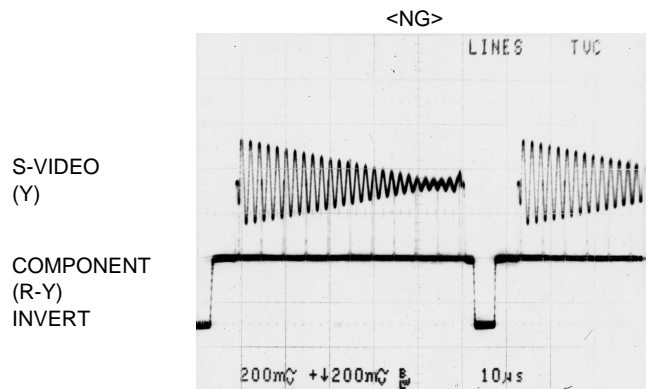
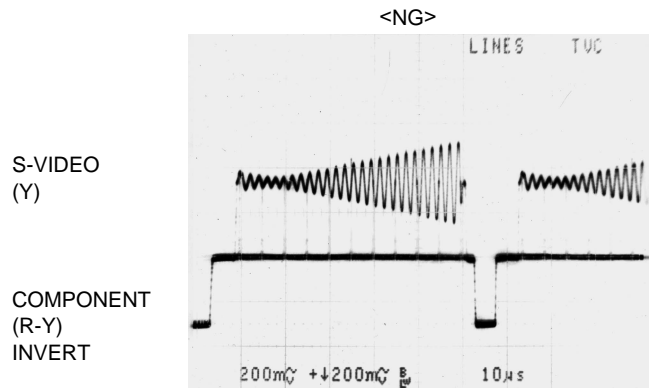
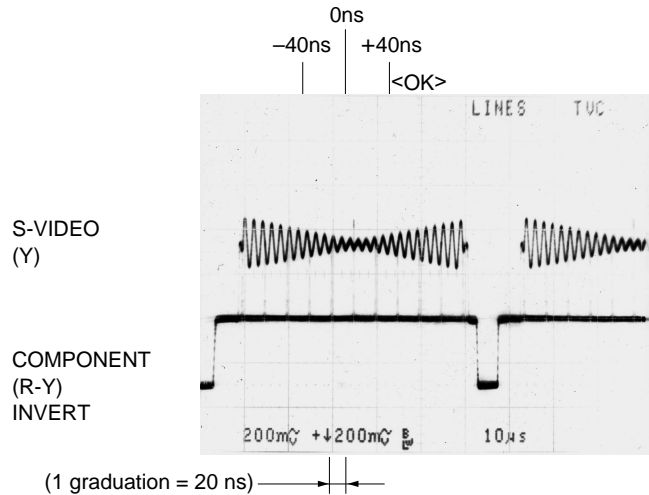
Connection : Connection 1
Input signal : BOWTIE
MENU No. : 636
Measuring point : S-VIDEO (Y) OUT, Camera tool
 COMPONENT (R-Y) IN
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Difference on Bowtie dip point
 = 0 ± 40 ns.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification.
 Press the RESET button after satisfying the specification to register the data.

* OSCILLOSCOPE

CH-1 : S-VIDEO (Y)
 CH-2 : COMPONENT (R-Y) <INVERT>
 MODE : ADD



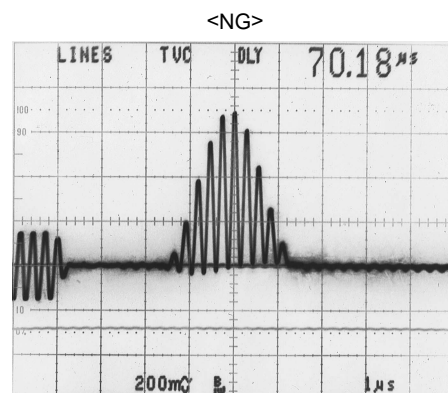
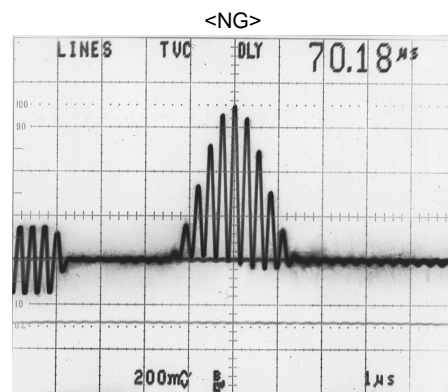
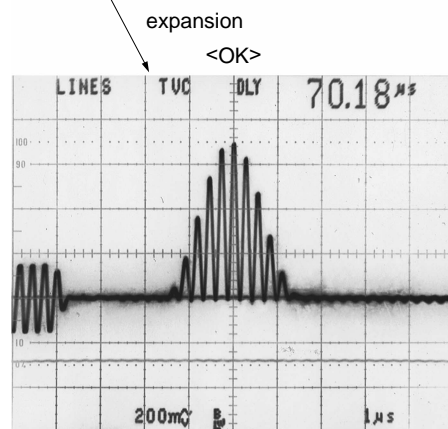
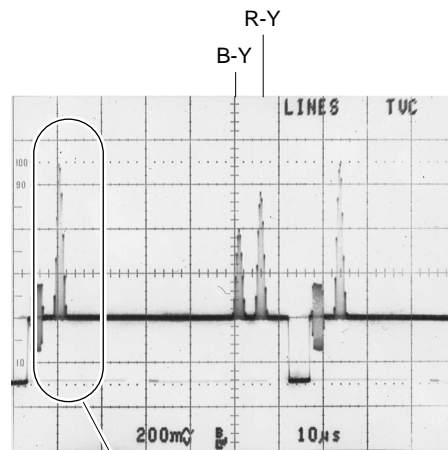
12-3-19. REC Y/C Delay Rough Adjustment

<For DSR-1>

Connection : Connection 1
Input signal : MOD 12.5T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of 12.5T pulse.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification.
 Press the RESET button after satisfying the specification to register the data.

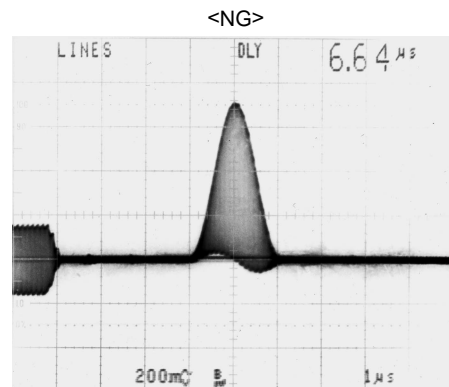
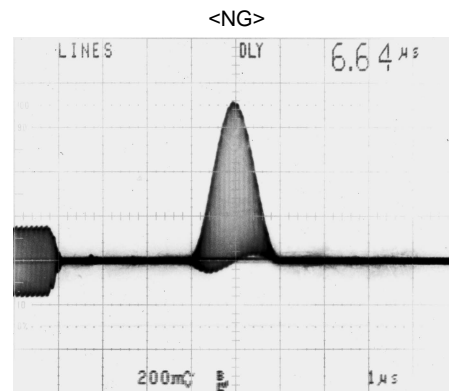
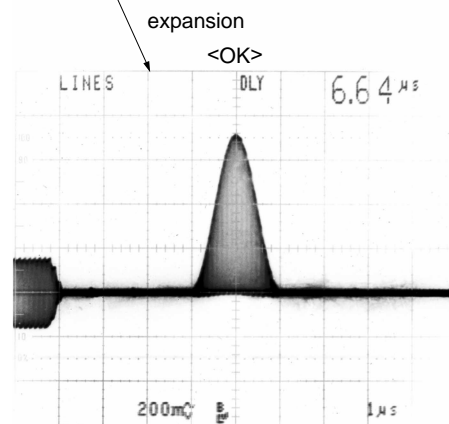
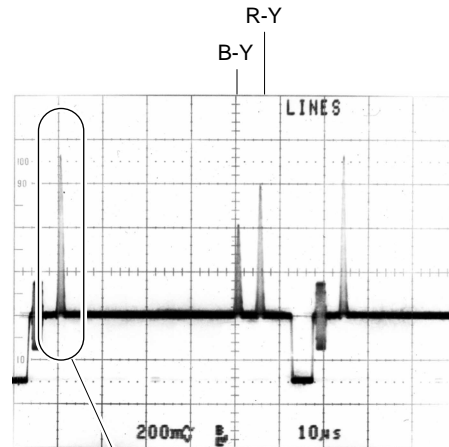


<For DSR-1P>

Connection : Connection 1
Input signal : MOD 10T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of 10T pulse.

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied. If the data has been changed, press the STOP button once to set the EE mode, then set the PB mode again, and check the specification.
 Press the RESET button after satisfying the specification to register the data.



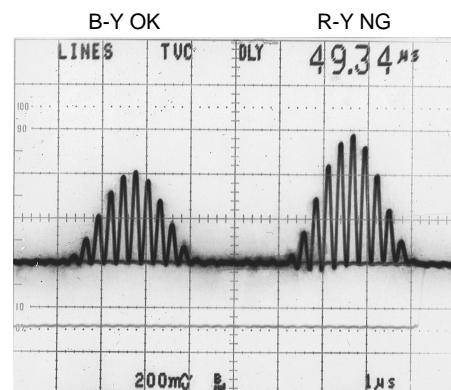
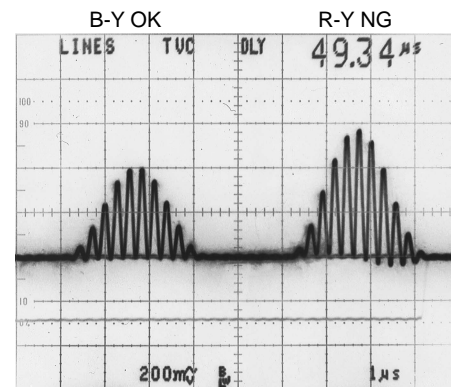
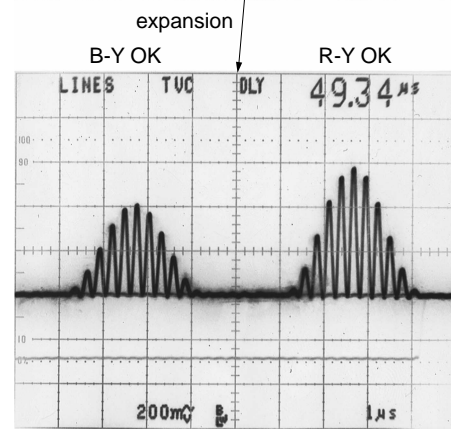
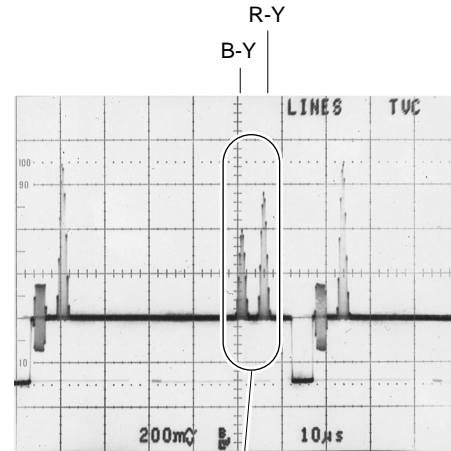
12-3-20. REC R-Y Y/C Delay Adjustment

<For DSR-1>

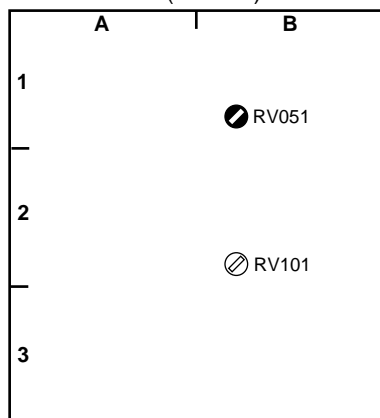
Connection : Connection 1
Input signal : MOD 12.5T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of R-Y modulation pulse.

Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust
 ⓪RV051 (B-1) so that the specification is satisfied.



IV-50 BOARD (SIDE-A)

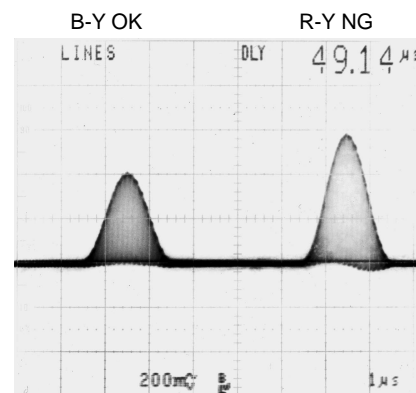
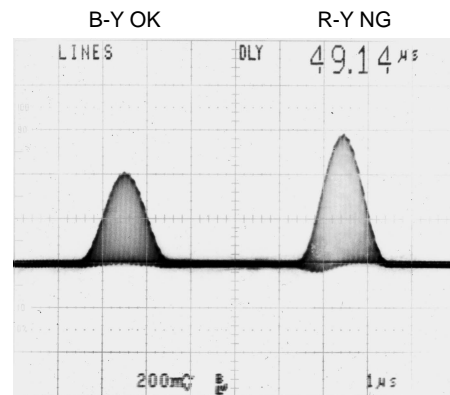
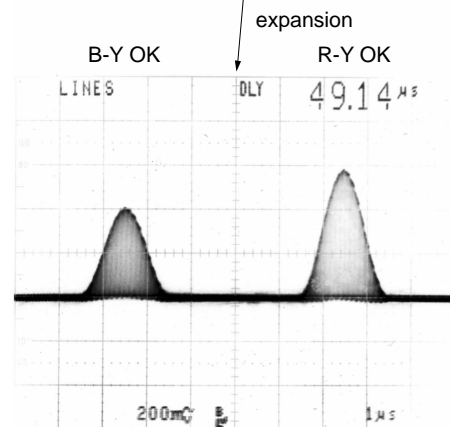
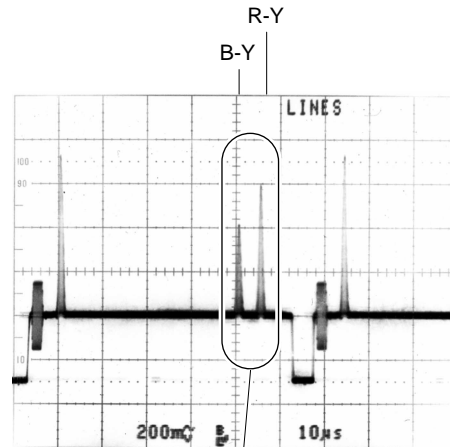


<For DSR-1P>

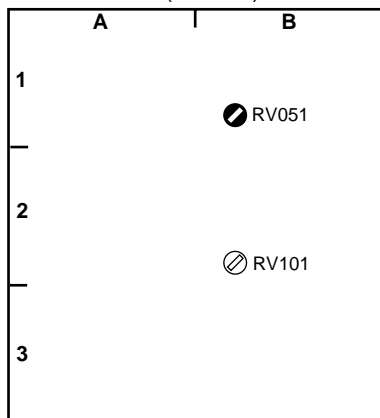
Connection : Connection 1
Input signal : MOD 10T (B-Y OFF)
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of R-Y modulation pulse.

Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust
 ⓪RV051 (B-1) so that the specification is satisfied.



IV-50 BOARD (SIDE-A)



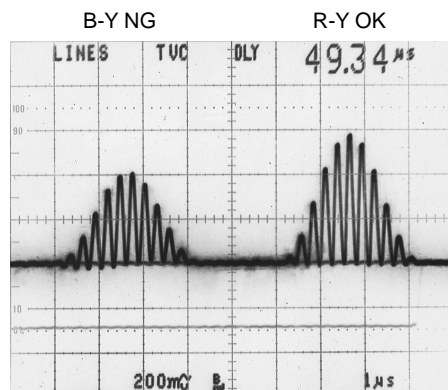
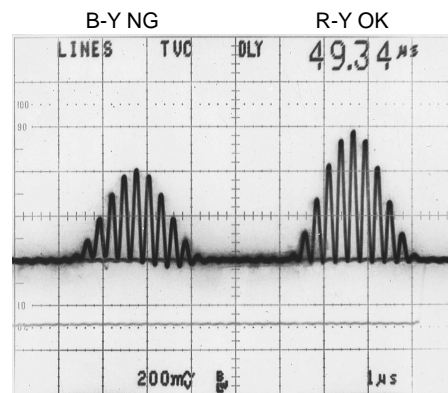
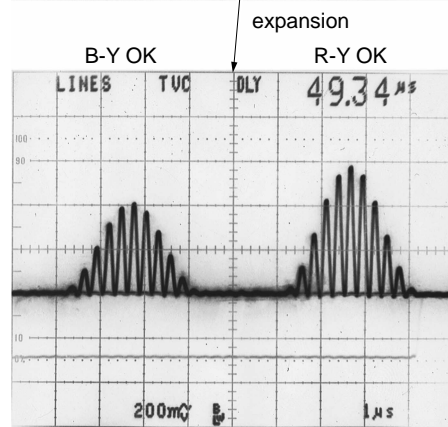
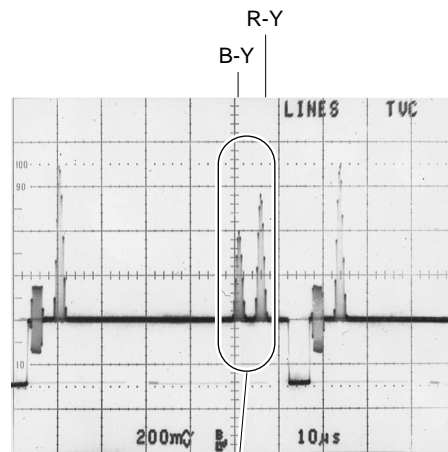
12-3-21. REC B-Y Y/C Delay Adjustment

<For DSR-1>

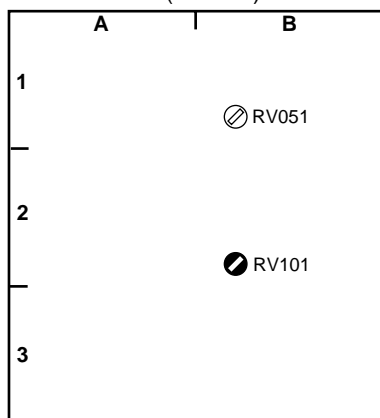
Connection : Connection 1
Input signal : MOD 12.5T
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of B-Y modulation pulse.

Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust
 ⒶRV101 (B-2) so that the specification is satisfied.



IV-50 BOARD (SIDE-A)

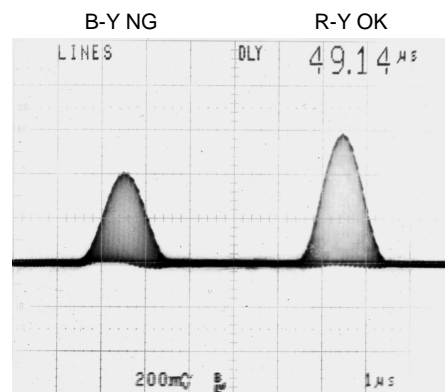
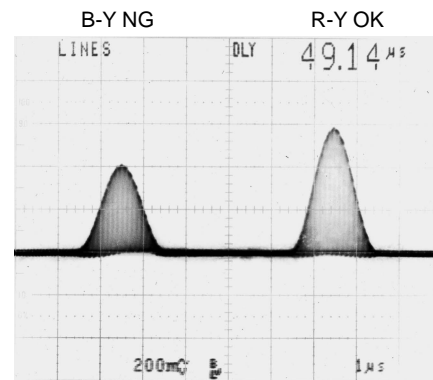
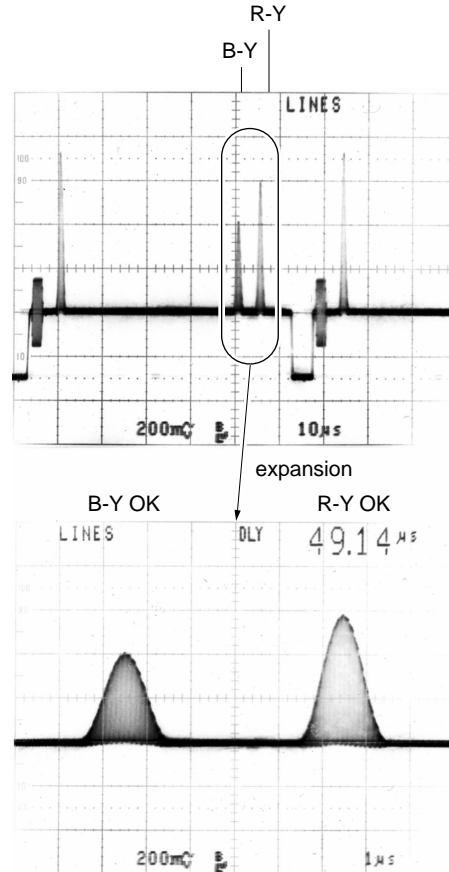


<For DSR-1P>

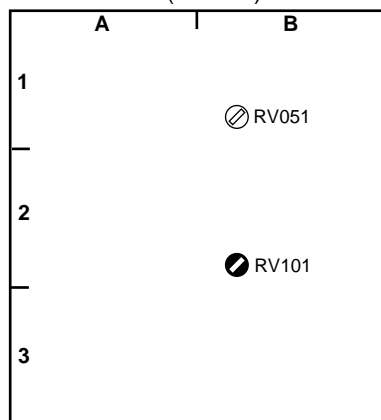
Connection : Connection 1
Input signal : MOD 10T (R-Y OFF)
MENU No. : 637
Measuring point : VIDEO OUT
VTR MODE : EE → PB
Tape : Blanking tape
Specification : Flatten the bottom side portion (envelope) of B-Y modulation pulse.

Adjusting method :

Set the unit to STOP and PB repeatedly, and adjust
 ⒶRV101 (B-2) so that the specification is satisfied.



IV-50 BOARD (SIDE-A)



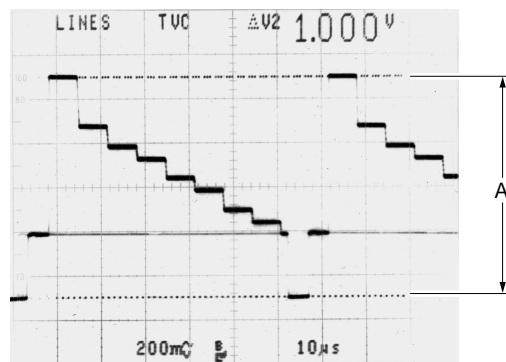
12-3-22. EE Y Level Adjustment

Connection : Connection 2 or 3
Input signal : Incorporated COLOR BARS
MENU No. : 638
Measuring point : S-VIDEO (Y) OUT
VTR MODE : EE
Tape : Not required.
Specification : Video level $A = 1.00 \pm 0.01$ V p-p
Adjusting method :

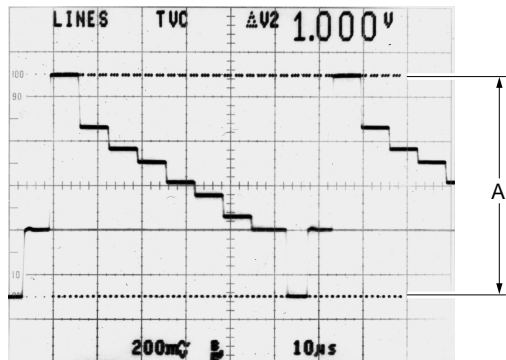
Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification to register the data.

<For DSR-1>



<For DSR-1P>



12-3-23. EE Chroma Level Adjustment

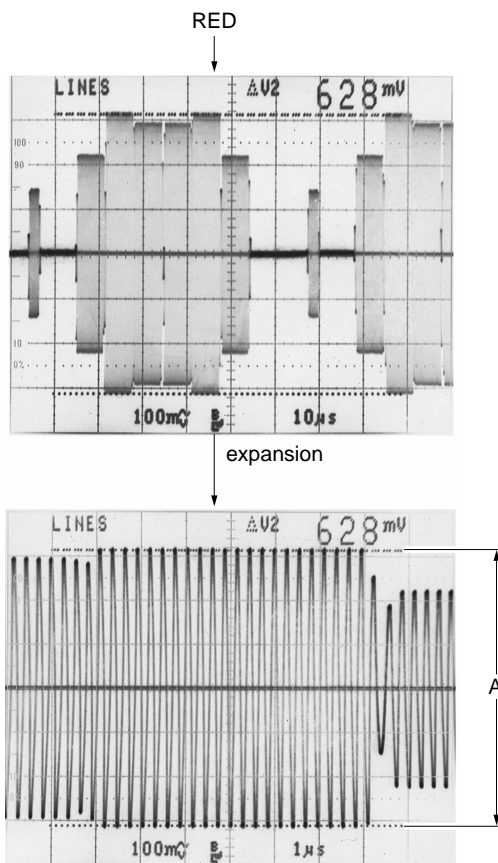
Connection : Connection 2 or 3
Input signal : Incorporated COLOR BARS
MENU No. : 639
Measuring point : S-VIDEO (C) OUT
VTR MODE : EE
Tape : Not required.
Specification : Chroma (red) level
<DSR-1>
A = 627 ± 5 mV p-p <CAMERA : UC>
A = 678 ± 5 mV p-p <CAMERA : J>
<DSR-1P>
A = 664 ± 5 mV p-p

Adjusting method :

Press the ADVANCE button or SHIFT button so that the specification is satisfied.

Press the RESET button after satisfying the specification to register the data.

<For DSR-1>



<For DSR-1P>

